	Type	L #	Hits	Search Text	DBs
1	BRS	L1	440606	(sample or flow or absorption or optical or spectroscopic) with (cell or chamber)	US-PGPUB; USPAT
2	BRS	L2	4685	1 and glass with window	US-PGPUB; USPAT
3	BRS	L3	444	1 and glass with (fuse or fused or fusing or heat or melt or melted) with window	US-PGPUB; USPAT
4	BRS	L4	1211	2 and (sample or flow or absorption or optical or spectroscopic) with (cell or chamber) same (tube or tubular or cylinder or cylindrical)	US-PGPUB; USPAT
5	BRS	L5	112	3 and (sample or flow or absorption or optical or spectroscopic) with (cell or chamber) same (tube or tubular or cylinder or cylindrical)	US-PGPUB; USPAT
6	BRS	L6	526	1 and fused with window	US-PGPUB; USPAT
7	BRS	L7	191	2 and fused with window	US-PGPUB; USPAT
8	BRS	L8	6	2 and melted with glass with window	US-PGPUB; USPAT

	Type	L #	Hits	Search Text	DBs
1	IS&R	L1	5	(("5125742") or ("6368560") or ("5886463") or ("5785729") or ("4523740")).PN.	USPAT
2	BRS	L2	137	appelt.inv.	US-PGPUB; USPAT
3	BRS	L4	0	3 and fus$ with joint	US-PGPUB; USPAT
4	BRS	L3	20	2 and cell	US-PGPUB; USPAT
5	BRS	L5	7	3 and stephan.inv.	US-PGPUB; USPAT
6	BRS	L6	7	2 and stephan.inv.	US-PGPUB; USPAT
7	BRS	L7	1261	optical with pump$ with (cell or chamber)	US-PGPUB; USPAT
8	BRS	L8	312	7 and (tube or tubular) with (cell or chamber)	US-PGPUB; USPAT
9	BRS	L9	168	8 and (glass or borosilicate or borofloate)	US-PGPUB; USPAT
10	BRS	L10	13	8 and glass with (borosilicate or borofloate)	US-PGPUB; USPAT
11	BRS	L11	77	7 and spin with exchange	US-PGPUB; USPAT
12	BRS	L12	20	11 and (tube or tubular) with (cell or chamber)	US-PGPUB; USPAT
13	BRS	L13	0	11 and (tube or tubular) with fus$ near8 joint with window	US-PGPUB; USPAT
14	BRS	L14	0	(tube or tubular) with fus$ near8 joint with window	US-PGPUB; USPAT

	Time Stamp	Comments	Error Definition	Errors
1	2006/05/16 13:15			
2	2006/05/16 13:15			
3	2006/05/16 13:16			
4	2006/05/16 13:16			
5	2006/05/16 13:20			
6	2006/05/16 13:21			
7	2006/05/16 13:21			
8	2006/05/16 13:24			
9	2006/05/16 13:22			
10	2006/05/16 13:23			
11	2006/05/16 13:23			
12	2006/05/16 13:28			
13	2006/05/16 13:28			
14	2006/05/16 13:29			

	Type	L #	Hits	Search Text	DBs
15	BRS	L15	0	(tube or tubular) with fus$ with joint with window	US-PGPUB; USPAT
16	BRS	L16	10	(tube or tubular) same fus$ with joint same window	US-PGPUB; USPAT
17	BRS	L17	11	(tube or tubular or cylinder) same fus$ with joint same window	US-PGPUB; USPAT
18	BRS	L18	8	(tube or tubular or cylinder) same fus$ with joint same window same glass	US-PGPUB; USPAT
19	BRS	L19	4819	(tube or tubular or cylinder) same window same glass	US-PGPUB; USPAT
20	BRS	L20	1689	(tube or tubular or cylinder) with window with glass	US-PGPUB; USPAT
21	BRS	L21	1	(tube or tubular or cylinder) with window with glass same (fused or fuse) with joint	US-PGPUB; USPAT

	Time Stamp	Comments	Error Definition	Errors
15	2006/05/16 13:29			
16	2006/05/16 13:29			
17	2006/05/16 13:30			
18	2006/05/16 13:40			
19	2006/05/16 13:40			
20	2006/05/16 13:41			
21	2006/05/16 13:41			

	Type	L #	Hits	Search Text	DBs
1	IS&R	L2	2305	(356/244,246).CCLS.	US-PGPUB; USPAT
2	BRS	L5	1410	2 and (cell or chamber)	USPAT
3	BRS	L6	671	5 and glass	USPAT
4	BRS	L8	0	7 and (fuse or fused) with joint	USPAT
5	BRS	L7	118	5 and glass with window	USPAT
6	BRS	L9	22	("3287557" | "3431424" | "3436159" | "3556659" | "3591287" | "3728540" | "3792272" | "4726680" | "4818882").PN. OR ("5125742").URPN.	US-PGPUB; USPAT; USOCR
7	BRS	L10	19	("0570726" | "1779076" | "3177706" | "4197531" | "4283937").PN. OR ("5120129").URPN.	US-PGPUB; USPAT; USOCR
8	BRS	L11	1774	(fuse or fused) with glass with (tube or cylinder or tubular)	USPAT
9	BRS	L12	2150	(fuse or fused) with glass with (tube or cylinder or tubular)	US-PGPUB; USPAT
10	BRS	L13	34	(fuse or fused) with glass with (tube or cylinder or tubular) with window	US-PGPUB; USPAT
11	BRS	L14	23	melt$ with glass with (tube or cylinder or tubular) with window	US-PGPUB; USPAT
12	BRS	L15	23	melt$ with glass with window with (tube or cylinder or tubular)	US-PGPUB; USPAT
13	BRS	L16	37	(fuse or fused or fusing) with glass with window with (tube or cylinder or tubular)	US-PGPUB; USPAT
14	IS&R	L17	1591	(250/200,343,373).CCLS.	US-PGPUB; USPAT

	Time Stamp	Comments	Error Definition	Errors
1	2006/05/16 15:05			
2	2006/05/16 15:05			
3	2006/05/16 14:16			
4	2006/05/16 15:05			
5	2006/05/16 14:16			
6	2006/05/16 14:27			
7	2006/05/16 14:32			
8	2006/05/16 14:44			
9	2006/05/16 14:44			
10	2006/05/16 14:48			
11	2006/05/16 15:01			
12	2006/05/16 15:01			
13	2006/05/16 15:06			
14	2006/05/16 15:05			

	Type	L #	Hits	Search Text	DBs
15	BRS	L18	928	17 and (cell or chamber)	USPAT
16	BRS	L19	81	17 and (cell or chamber) with glass	USPAT
17	BRS	L20	0	19 and (fuse or fused) with joint	USPAT
18	BRS	L21	1	17 and (fuse or fused or fusing) with glass with window with (tube or cylinder or tubular)	US-PGPUB; USPAT
19	BRS	L22	32	17 and (cell or chamber) with glass same window	USPAT

	Time Stamp	Comments	Error Definition	Errors
15	2006/05/16 15:05			
16	2006/05/16 15:06			
17	2006/05/16 15:05			
18	2006/05/16 15:06			
19	2006/05/16 15:06			

	Type	L #	Hits	Search Text	DBs
1	BRS	L1	440606	(sample or flow or absorption or optical or spectroscopic) with (cell or chamber)	US-PGPUB; USPAT
2	BRS	L2	4685	1 and glass with window	US-PGPUB; USPAT
3	BRS	L3	444	1 and glass with (fuse or fused or fusing or heat or melt or melted) with window	US-PGPUB; USPAT
4	BRS	L4	1211	2 and (sample or flow or absorption or optical or spectroscopic) with (cell or chamber) same (tube or tubular or cylinder or cylindrical)	US-PGPUB; USPAT
5	BRS	L5	112	3 and (sample or flow or absorption or optical or spectroscopic) with (cell or chamber) same (tube or tubular or cylinder or cylindrical)	US-PGPUB; USPAT
6	BRS	L6	526	1 and fused with window	US-PGPUB; USPAT
7	BRS	L7	191	2 and fused with window	US-PGPUB; USPAT
8	BRS	L8	6	2 and melted with glass with window	US-PGPUB; USPAT
9	BRS	L9	37	2 and melt$ with glass with window	US-PGPUB; USPAT

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 NEWS  7  FEB 27   New STN AnaVist pricing effective March 1, 2006
 NEWS  8  MAR 03   Updates in PATDPA; addition of IPC 8 data without attributes
 NEWS  9  MAR 22   EMBASE is now updated on a daily basis
 NEWS 10  APR 03   New IPC 8 fields and IPC thesaurus added to PATDPAFULL
 NEWS 11  APR 03   Bibliographic data updates resume; new IPC 8 fields and IPC
                   thesaurus added in PCTFULL
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                   second quarter; strategies may be affected
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   2 FILES SEARCHED...
L1 283867 (SAMPLE OR FLOW OR ABSORPTION OR OPTICAL OR SPECTROSCOPIC) (S) (CELL OR CHAMBER)

=> s l1 and glass (s) (window or port)
L2 488 L1 AND GLASS (S) (WINDOW OR PORT)

=> s l2 and glass (s) (fuse or fused or fusing or heat? or melt?) (s) window
L3 58 L2 AND GLASS (S) (FUSE OR FUSED OR FUSING OR HEAT? OR MELT?) (S) WINDOW

=> s glass (s) (sample or flow or absorption or optical or spectroscopic) (s) (cell or chamber) (s) (tube or tubular or cylinder or cylindrical)
   2 FILES SEARCHED...
L4 644 GLASS (S) (SAMPLE OR FLOW OR ABSORPTION OR OPTICAL OR SPECTROSCOPIC) (S) (CELL OR CHAMBER) (S) (TUBE OR TUBULAR OR CYLINDER OR CYLINDRICAL)

=> s l4 and (fus? or melt?) (s) glass (s) end (s) window
L5 1 L4 AND (FUS? OR MELT?) (S) GLASS (S) END (S) WINDOW

=> display l5 1 ibib abs

L5 ANSWER 1 OF 1 INSPEC (C) 2006 IET on STN
ACCESSION NUMBER: 1997:5545094 INSPEC
DOCUMENT NUMBER: A1997-09-3280P-019; B1997-05-7130-038
TITLE: Research on the cesium cold atoms at the Institute for Atomic Physics in Bucharest, Romania

AUTHOR: Mandache, C.; (Inst. of Atomic Phys., Bucharest, Romania), Acsente, T.; Bengulescu, M.
SOURCE: Proceedings of the Fifth Symposium on Frequency Standards and Metrology, 1996, p. 415-16 of xxiv+548 pp., 2 refs.
Editor(s): Bergquist, J.C.
ISBN: 981 02 2527 X
Published by: World Scientific, Singapore, Singapore
Conference: Proceedings of Fifth Symposium on Frequency Standards and Metrology, Woods Hole, MA, USA, 15-19 Oct. 1995
Sponsor(s): Air Force Office of Sci. Res.; NIST
DOCUMENT TYPE: Conference; Conference Article
TREATMENT CODE: Experimental
COUNTRY: Singapore
LANGUAGE: English
AN 1997:5545094 INSPEC DN A1997-09-3280P-019; B1997-05-7130-038
AB We present the first results of the researches concerning the cesium cold atoms performed at the Institute for Atomic Physics in Bucharest. Our experimental device for cooling and stopping the Cs atoms is quite simple: a main **fused** silica **cylinder** (50 mm diameter) with four orthogonal arms (18 mm diameter), and at each **end**, **optical windows** to allow the laser radiation to pass. The Cs reservoir is attached to the **glass** envelope in a "cold finger" configuration. All the **cell** trap (including the "cold finger" of Cs) is attached to an ionic pump

=> display l3 1-58 ibib abs

L3 ANSWER 1 OF 58 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2005:695671 CAPLUS
DOCUMENT NUMBER: 143:164816
TITLE: System for fabrication of semiconductor devices including patternwise deposition processes and bubble traps therein
INVENTOR(S): Tarutani, Kohei; Kimura, Masao; Nakagawa, Toshiyuki; Nakamoto, Naoyuki
PATENT ASSIGNEE(S): L'air Liquide, Societe Anonyme Pour L'etude Et L'exploitation Des Procedesgeorges, Fr.
SOURCE: Jpn. Kokai Tokkyo Koho, 14 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2005206911	A2	20050804	JP 2004-16696	20040126
WO 2005080630	A1	20050901	WO 2005-IB169	20050119

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW
RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

PRIORITY APPLN. INFO.: JP 2004-16696 A 20040126
AB The system, for carrying out patternwise deposition process, includes a means for feeding of raw material liquid to evaporator with pressurized gas

and a means for feeding the evaporated gas to treatment **chamber** via a mass **flow** controller and the system is also equipped with a bubble trap in the upstream vicinity of the mass **flow** controller. The trap comprises a separating **chamber**, into which the raw material liquid is charged, in which the bubbles formed with the pressurized feeding gas is removed, from which the treated liquid is discharged, and from which the separated gas is purged, and preferably, the said **chamber** is equipped with a 1st and a 2nd windows and a 1st and a 2nd **optical** sensors, that are connected to a controller for the gas purging valve. The trap alone is also claimed. The raw material feed to the deposition chamber is carried out under high accuracy.

L3 ANSWER 2 OF 58 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2003:771680 CAPLUS
DOCUMENT NUMBER: 139:293797
TITLE: Apparatus for determination of vapor-liquid equilibrium data
INVENTOR(S): Hiaki, Toshihiko
PATENT ASSIGNEE(S): Taiatsu Glass Kogyo K. K., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 5 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2003279509	A2	20031002	JP 2002-83258	20020325
PRIORITY APPLN. INFO.:			JP 2002-83258	20020325

AB The title apparatus is made of stainless steel, and composed of a **sample** injection valve connected to a **heater** having an extended upper nozzle, an equilibrium **chamber** with a temperature detector and connected to the nozzle, and a downward liquid-phase pipe and an upward bent vapor-phase pipe connected to the equilibrium **chamber**, whereas the liquid-phase pipe is connected to the **heater** through a level meter, the vapor-phase pipe is connected to a condenser having a condensed-**sample** pipe connected through the level meter to the **heater**, and the equilibrium **chamber**, level meter, and condenser have a **window** made of pressure-resistant **glass**
.

L3 ANSWER 3 OF 58 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2003:271979 CAPLUS
DOCUMENT NUMBER: 138:290946
TITLE: Method for preventing contamination of detection window in tray in continuous vacuum cementation furnace by controlled blowing of inert gas
INVENTOR(S): Murakami, Shigeru; Takashima, Sueo; Takado, Akira; Ikenaga, Junichi; Fukuda, Koichi; Tamura, Akio
PATENT ASSIGNEE(S): Nachi-Fujikoshi Corp., Japan; Toyota Motor Corp.
SOURCE: Jpn. Kokai Tokkyo Koho, 6 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2003105524	A2	20030409	JP 2001-301105	20010928
PRIORITY APPLN. INFO.:			JP 2001-301105	20010928

AB A continuous vacuum cementation furnace comprises a **heating chamber**, a carburizing **chamber**, and a diffusion

chamber, and there are provided partition doors separating the **chambers**, drive mechanisms for opening the doors, **windows** from **heat**-resistant **glass** for detecting the trays or baskets between the doors, sensors for detecting trays outside of the **windows**, a nozzle for blowing inert gas onto the inner surface of the **heat**-resistant **glass** to prevent contaminaiton thereof, a monitoring flowmeter for adjusting the **flow** rate of the inert gas, an electromagnetic valve for introducing the inert gas, and a control circuit for driving the electromagnetic valve. Timing of the inert gas is controlled so that it is supplied only during the supply of carburizing gas into the carburizing chamber (and then for 25-30% of this period). Contamination of the detection window is effectively prevented.

L3 ANSWER 4 OF 58 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2001:634412 CAPLUS
DOCUMENT NUMBER: 135:281474
TITLE: Observation of an electromotive force in a decaying photoresonance plasma of sodium vapors
AUTHOR(S): Gorbunov, N. A.; Stacewicz, T.
CORPORATE SOURCE: Institute of Physics (Petrodvorets Branch), St. Petersburg State University, Petrodvorets, 198904, Russia
SOURCE: High Temperature (Translation of Teplofizika Vysokikh Temperatur) (2001), 39(4), 623-625
CODEN: HITEA4; ISSN: 0018-151X
PUBLISHER: MAIK Nauka/Interperiodica Publishing
DOCUMENT TYPE: Journal
LANGUAGE: English
AB An experiment was conducted to study the formation of elec. fields in a photoplasma in the direction orthogonal to the optical excitation axis. To protect against the destructive effect of vapors on the **glass windows** of the **cell**, a **heat**-pipe device, commonly employed for **spectroscopic** studies in metal vapors, was used. A pulsed re-tunable laser was used as the source of resonance optical excitation of Na vapors. Exptl. results suggest that, in designing **cells** and current-collecting electrodes intended for direct conversion of light to elec. energy in a resonance photoplasma, it is necessary to take into account the p.d. arising in a plasma both along the **optical** excitation axis and in the orthogonal direction.
REFERENCE COUNT: 8 THERE ARE 8 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L3 ANSWER 5 OF 58 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2001:538722 CAPLUS
DOCUMENT NUMBER: 135:172112
TITLE: Optical and solar parameters of irradiated lead-alkali-silicate glass
AUTHOR(S): Dogan, N.; Beril Tugrul, A.
CORPORATE SOURCE: Institute for Nuclear Energy, Nuclear Applications Division, Ayazaga Campus, Istanbul Technical University, Istanbul, Maslak, 80626, Turk.
SOURCE: Solar Energy Materials and Solar Cells (2001), 69(3), 241-250
CODEN: SEMCEQ; ISSN: 0927-0248
PUBLISHER: Elsevier Science B.V.
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Lead-alkali-silicate **glass** that is used for a shielding **window** of hot cells in nuclear technol. has been irradiated by a 60Co radioisotope source between 0.998 and 35.939 kGray dose levels. Gamma rays can affect glass and change its several optical and solar parameters such as secondary internal heat transfer factor (qi), direct solar transmittance (τe), solar factor (g) and shading coefficient via the absorbed dose. It is aimed to investigate the performance of the glass in terms of the shading coefficient, which is the most important parameter to view

clearly inside of the hot cell. Furthermore, a comparative evaluation has been done with respect to the unexposed lead-alkali-silicate glass. Change in the shading coefficient with respect to absorbed dose is extremely important.

REFERENCE COUNT: 17 THERE ARE 17 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L3 ANSWER 6 OF 58 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 1998:424758 CAPLUS
DOCUMENT NUMBER: 129:56869
TITLE: Influence of mold filling and natural convection on the solidification of cast iron
AUTHOR(S): Mampaey, F.
CORPORATE SOURCE: WTCM Foundry Center, Zwijnaarde, B-9052, Belg.
SOURCE: Advanced Materials Research (Zug, Switzerland) (1997), 4-5(Physical Metallurgy of Cast Iron V), 73-87
CODEN: AMREFI; ISSN: 1022-6680
PUBLISHER: Scitec Publications
DOCUMENT TYPE: Journal
LANGUAGE: English

AB The influence of mold filling on the final nodule count distribution in a complex thin wall casting was studied. Simulation results of mold filling were compared with exptl. results obtained by pouring liquid cast iron behind a **heat** resistant **glass window.** Application of a nucleation model permitted to calculate the nodule count distribution. A good agreement with exptl. nodule counts was found. The influence of thermal convection was studied in cylindrical castings. The results illustrated the shift of the thermal center, the increased heat transfer in the liquid and the thickness variation of the solidified peripheral layer. Convection currents were visualized by a tracer technique. Graphite nodules are transported by the convection flow in (hyper)eutectic cast iron. There was no evidence that the eutectic **cells** in lamellar graphite cast iron are moved by the convection **flow.**

L3 ANSWER 7 OF 58 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 1995:655147 CAPLUS
DOCUMENT NUMBER: 123:37214
TITLE: Manufacture of cadmium sulfide/cadmium telluride solar cells
INVENTOR(S): Shibuya, Satoshi; Hanabusa, Akira; Eda, Nobuo
PATENT ASSIGNEE(S): Matsushita Electric Ind Co Ltd, Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 4 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 07094769	A2	19950407	JP 1993-237821	19930924

PRIORITY APPLN. INFO.: JP 1993-237821 19930924

AB The solar **cells**, having a CdS **window** layer and a CdTe **absorption** layer, are prepared by applying and drying a paste of Cd, Te, and CdTe in an organic solvent on a **glass** plate to form a dried CdTe layer, stacking the plate on a **glass** plate having a CdS layer with the 2 layers facing each other, and **heat** treating to form a CdTe layer on the CdS layer. Preferably, the heat treatment is carried out at 500-700° in an inert atmospheric

L3 ANSWER 8 OF 58 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 1992:143014 CAPLUS
DOCUMENT NUMBER: 116:143014
TITLE: **Flow cell** resistant to corrosive

environments for fiber optic spectroscopy
INVENTOR(S): Evens, F. Monte; Barker, Craig T.; Ray, Charles R.
PATENT ASSIGNEE(S): Conoco, Inc., USA
SOURCE: U.S., 9 pp.
CODEN: USXXAM
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 5078493	A	19920107	US 1990-546592	19900629
PRIORITY APPLN. INFO.:			US 1990-546592	19900629

AB A **flow cell**, for highly corrosive environments, is constructed from a cross union and contains opposing probes, each with an external sapphire **window** which is sealed into a metal tube contained in each probe with **melted glass** and an optional plastic seal over the **melted glass.** Each portion of the cross union containing a probe has a right-angle shoulder which abuts the end of the tube containing the sapphire window. An O-ring gasket is positioned between the right-angle shoulder and tube end to form a tight cover over the glass seal when the probes are assembled in the **flow cell**, thereby protecting the glass seal and plastic seal from the corrosive environment.

L3 ANSWER 9 OF 58 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 1970:95225 CAPLUS
DOCUMENT NUMBER: 72:95225
TITLE: Simple, evacuable, double-beam infrared hot cell assembly
AUTHOR(S): Wilson, Henry Wallace
CORPORATE SOURCE: Dep. of Chem., Western Washington State Coll., Bellingham, WA, USA
SOURCE: Applied Spectroscopy (1970), 24(1), 6-8
CODEN: APSPA4; ISSN: 0003-7028
DOCUMENT TYPE: Journal
LANGUAGE: English

AB A common 10-cm **glass** ir gas-phase cell can be **heated** to .apprx.250° under a vacuum of 10-4 torr if the crystal **windows** are sealed to the cell body with silicone rubber. A double-beam, forced-air circulation chamber or oven has been designed and constructed so that such cells can be used to obtain compensated high-temperature ir spectra. The temps. of both the **sample** and reference **cells** are essentially identical since the forced circulation in the oven achieves a thermal homogeneity over the whole interior of the oven. The temps. of the cells may be raised or lowered relatively rapidly without damage.

L3 ANSWER 10 OF 58 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 1967:87029 CAPLUS
DOCUMENT NUMBER: 66:87029
TITLE: Liquid cell for polarimeters
INVENTOR(S): Podschadly, Gerhard; Mayer, Peter
PATENT ASSIGNEE(S): Bodenseewerk Perkin-Elmer und Co. G.m.b.H.
SOURCE: Ger., 5 pp.
CODEN: GWXXAW
DOCUMENT TYPE: Patent
LANGUAGE: German
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DE 1232765	B	19670119	DE 1964-B79915	19641228

US 3521965 A 19700728 US 1965-514946 19651220
PRIORITY APPLN. INFO.: DE 1964-B79915 A 19641228
AB Errors in rotational dispersion and circular dichroism measurements in an ordinary thin cell due to strain double refraction in the cell windows are avoided. The new cells avoid this error arising from screw-on window pressure, unequal cooling in manufacture or handling stress. The **cells** are made as a cavity in a thick, stiff (1 cm.) **optical glass** or quartz **glass** plate with thin **windows** adhered to the plate with a low-**melting glass.** The low m.p. adhesive avoids large strains in the window and does not transmit strains from the thick plate.

L3 ANSWER 11 OF 58 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 1965:494342 CAPLUS
DOCUMENT NUMBER: 63:94342
ORIGINAL REFERENCE NO.: 63:17301d-f
TITLE: Transmittance of optical materials at high temperatures in the 1-μ to 12-μ range
AUTHOR(S): Gillespie, D. T.; Olsen, A. L.; Nichols, L. W.
CORPORATE SOURCE: U.S. Naval Ordnance Sta., China Lake, CA
SOURCE: Applied Optics (1965), 4(11), 1488-93
CODEN: APOPAI; ISSN: 0003-6935
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Transmittance measurements of optical materials were made at 25, 100, 200, 300, and 400° in the 1-μ to 12-μ range with a Perkin-Elmer Model 21 spectrophotometer. A continuous proportioning temperature control system, by using a modified Loyola LC-2 4KVA power manipulator in conjunction with a Wheelco Capacitrol, provided a given temperature level in high-temperature cells. The following materials, which are dielec. and semiconductors of potential use as **windows** and IRDOMES in optical systems at high temps., were selected: Corning **glasses**, nos. 0160, 8363, and 7905; **fused**, H2O-free quartz, type 106, Gen. Elec.; Barr and Stroud Ca aluminate, 37 A. and 39 A.; sapphire, Linde Company; Irtran-1 and Irtran-2; AgCl; NaCl; Si; and Ge. A final transmittance trace, corrected for **cell** characteristics, of each **optical** material at a given temperature was obtained by drawing a smooth curve through the point-by-point adjustments of the specimen spectrum. The transmittance of dielecs. remains relatively unaffected up to 400°. Optical materials of this class are restricted in use at the higher temps. only in the shift of the long-wavelength transmittance-limit. With the semiconductors Si and Ge, the absorption edge is shifted to longer wavelengths, and the overall transmittance is reduced greatly with increase in temperature

L3 ANSWER 12 OF 58 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 1953:39042 CAPLUS
DOCUMENT NUMBER: 47:39042
ORIGINAL REFERENCE NO.: 47:6621g-i,6622b-f
TITLE: Temperature measurements in glass bath of tank furnaces
AUTHOR(S): Trier, Wolfgang
CORPORATE SOURCE: Huttentech. Ver. Glasind., Frankfurt/Main, Germany
SOURCE: Glastechnische Berichte (1953), 26, 5-12
CODEN: GLBEAQ; ISSN: 0017-1085
DOCUMENT TYPE: Journal
LANGUAGE: Unavailable
AB Glassmelt temps. in 4 **window-glass**, one white-**glass**, one browngiass, and one green (Fe)-**glass** tank furnace were studied with a dipping thermocouple pyrometer, with a protection tube of shrunk alumina. A long cooling tube surrounded the upper part of the instrument which was introduced in a vertical direction into the melt bath. Measurements were made at points systematically distributed over the longitudinal and cross sections of the tank; temperature changes by the alternating flame were observed only to a limited depth of

the melt. Three coordinates (glass depth, distance from the mouth of the furnace, and temperature measured) were determined for every point. Isothermal curves and temperature gradients are distinctly different for colorless and green or brown (Fe-Mn-colored) glass. There is usually a temperature maximum at a depth of 30 cm.; the foamy-surface layer of fusing batch on the glass surface has a distinct heat-retaining effect. Also the strong heat absorption in Fe-green glass is distinctly recognized by the particular (S-shaped)isothermal curves. Also in the refining zone, the indirect effects of the swimmer and of the throat are expressed in the curves, indicating the downward streaming of the hot surface glass. It is concluded that the temperature distribution in the glass bath is chiefly controlled by convections. The average temperature gradient between the glass surface and the tank bottom indicates the strong effects of heat absorption as a function of the chemical composition of the glass; decolored white glass (with an absorption index k = 0.2 cm.-1) shows the lowest temperature slope with depth, ordinary plate glass (k = 0.3 cm.-1) stronger, green glass (k = 2.0 cm.-1) the strongest slope, with a distinct approximation of the heat transfer to the conditions of pure heat conduction. The corresponding temperature differences between surface and bottom are 100°, 200°, and 350-400°. These conditions cause important factors for the character of the temperature distribution from the fusion to the working chambers of the tanks, determined by the character of the glass composition and the temperature gradients. Additional studies concern the temps. near the side walls of the tanks, which are chiefly dependent on the properties of the fuel (producer or coke-oven) gas and the length of the flame. On the inner convection currents the present measurements do not give too much information; the surface currents (swimmer method) have a longitudinal speed of 4.5-6.5 m./hr. For **window glass**, only 10% of the **heat** irridiated on the **glass** surface penetrates to the bottom; the **heat flow** is particularly strong at about 5-cm. depth, with an intense convection from the fusion to the working **chambers.** For green **glass** 30% of the irradiated **heat** reaches the bottom of the tank; the quotient: **heat** flow/temperature gradient, which is an expression for **heat** conduction is for **window glass** 30-60, for green **glass** 3-6 kcal./m. hr. °C.

L3 ANSWER 13 OF 58 COMPENDEX COPYRIGHT 2006 EEI on STN
ACCESSION NUMBER: 2006(19):10154 COMPENDEX
TITLE: Investigations into the functioning of a supply air window in relation to solar energy as determined by experiment and simulation.
AUTHOR: Southall, R.G. (Department of Architecture University of Cambridge The Martin Centre, Cambridge, CB2 2EB, United Kingdom); McEvoy, M.E.
SOURCE: Solar Energy v 80 n 5 May 2006 2006.p 512-523
CODEN: SRENA4 ISSN: 0038-092X
PUBLICATION YEAR: 2006
DOCUMENT TYPE: Journal
TREATMENT CODE: Theoretical
LANGUAGE: English
AN 2006(19):10154 COMPENDEX
AB 'Supply air **windows**' under optimum **flow** conditions function as an efficient **heat** reclaim device. **Heat** escaping from the room, through the inner **glass** pane, is entrained in the air **flow** between the inner and outer sashes and returned to the room. A low-E coating to the inner **glass** acts as a barrier to radiation **heat** loss across the **window** so very low U-values can be achieved. These same characteristics enable the **window** to function as a passive solar component. Its efficiency is inferior to that of a dedicated passive solar device due to its transparency, but even so at modest levels of incident solar gain a

worthwhile proportion is entrained into the air **flow** and supplied to the rooms as pre-**heated** ventilation air supply. These characteristics have been established by laboratory, test **cell** investigations, and simulations using computational fluid dynamics and ESP-r, a whole building dynamic thermal modelling tool. $CPY 2005 Elsevier Ltd. All rights reserved. 10 Refs.

L3 ANSWER 14 OF 58 COMPENDEX COPYRIGHT 2006 EEI on STN
ACCESSION NUMBER: 2006(13):1157 COMPENDEX
TITLE: Analysis of the internal glass surfaces of vacuum glazing.
AUTHOR: So, L. (University of Sydney, Sydney, NSW, Australia); Ng, N.
MEETING TITLE: SVC, Society of Vacuum Coaters - 48th Annual Technical Conference.
MEETING LOCATION: Denver, CO, United States
MEETING DATE: 23 Apr 2005-28 Apr 2005
SOURCE: Proceedings, Annual Technical Conference - Society of Vacuum Coaters 2005.p 686-687
SOURCE: SVC, Society of Vacuum Coaters - 48th Annual Technical Conference Proceedings
CODEN: PASVBF ISSN: 0737-5921
PUBLICATION YEAR: 2005
MEETING NUMBER: 66840
DOCUMENT TYPE: Conference Article
TREATMENT CODE: Theoretical; Experimental
LANGUAGE: English
AN 2006(13):1157 COMPENDEX
AB The surface properties of a material are often the reason for it to be chosen for an application. In modern industries, it is important to monitor the surface properties to ensure proper functionality of products. As a result, surface analysis is a powerful tool for today's process development. X-ray photoelectron spectroscopy (XPS) is one of the most widely used surface analysis techniques for materials. It is able to detect the elemental composition of a surface through wide scan survey spectra and the chemical structure of elements on the surface with detailed regional scans. However, great care has to be taken in performing XPS measurements. Hydrocarbon contamination of surfaces being studied by XPS is widely documented. It was found that contamination occurred rapidly on evacuated **glass** surfaces prior to XPS study. Vacuum glazing is a transparent thermal insulator that has the potential for widespread applications in the **windows** of energy efficient buildings. It consists of two **glass** sheets sealed together around the edges, with a vacuum space in between. The **glass** sheets are kept apart by small pillars within the evacuated space. Transparent low emittance coatings are usually used on the **glass** sheets to reduce radiative **heat** transport to a low level. In order for the vacuum glazing to be able to dissipate its insulating property, the internal pressure of the device should be kept below 10-3 Torr during its service life. Previous outgassing studies have shown that thermal outgassing of vacuum glazing could affect the internal vacuum. In this study, XPS was used to investigate the internal **glass** surfaces of vacuum glazing and the effect of temperature treatments on **glass** surfaces. In order to eliminate contamination of the **sample** area, a special system was designed and incorporated to enable an in situ breakage of glazing **samples** within the XPS machine. The system consists of specially designed evacuated flat panel **samples**, a customized **sample** holder for the **samples** used in the study, and a lever system within the XPS preparation **chamber** for the breaking of **samples**. The surface-to-volume ratio of vacuum glazing results in the vacuum being highly sensitive to outgassing from the internal surfaces. In order to simulate the configuration of vacuum glazing, a miniature evacuated flat panel **sample** was designed for the study. Each **sample** was made of two sheets of sodalime **glass** of dimensions 10 mm * 15 mm and 11 mm * 12.5 mm,

respectively. Commercially available uncoated sodalime **glass** (N **glass**) and low emittance tin-oxide coated sodalime **glass** (K **glass**) were used in the making of **samples.** **Samples** were either made of two sheets of N **glass** (NN **samples**) or K **glass** (KK **samples**). One of the sheets (11 mm * 12.5 mm) incorporated a hole in the middle for placement of the pumpout tube for the pumping process. The **sample** holder used in this study resembles the configuration of an ordinary XPS **sample** holder made of non-magnetic stainless steel, with a larger **sample** holding area. A vertical channel was created in the centre of the holder to accommodate the stud of the pumpout tube of **sample.** On the sides of the holder, it contains four screws to secure the **sample** onto the holder. During breakage of the **sample** in the XPS **chamber**, the breakage lever came in from an extension of the preparation **chamber.** The **sample** was broken open and the top **glass** sheet fell to the bottom of the **chamber** leaving the bottom **glass** sheet with the surface to be analysed secured on the **sample** holder. In this study, the XPS spectra of the surfaces of N **glass** and K **glass** were examined to compare the difference in their elemental compositions. Wide scan survey spectra were done and the relative atomic concentration of different elements was compared. The predominant elements present on the surface of N **glass** are oxygen, sodium, and silicon. Small amounts of tin and calcium and traces of zinc and magnesium are also found. The spectrum of the tin oxide-coated K **glass** reveals an abundance of tin on the surface of K **glass** and diminished relative concentrations of silicon and sodium. The difference in elemental concentrations of N **glass** and K **glass** has an implication on the interpretation of XPS results of the two types of **glass.** In comparing the concentration of an element on N **glass**, the concentration should be normalized by referring to the concentration of silicon as it is in abundance and also practically immobile. While in studying elemental concentrations on K **glass**, tin should be used in the normalization of concentration because of its high abundance on the surface. The internal **glass** surfaces of **samples** made under 150deg C baking and 350deg C baking were studied and the results were correlated with previous thermal outgassing experiments on vacuum glazing. Both wide scan survey spectra and detailed carbon region scans were performed. Comparison of the wide scans show that while all the elements remain unchanged in their relative concentrations, the amount of carbon is significantly lower on the surface of the 350deg C baked **sample.** The C 1s spectra of both **samples** show the presence of three carbon functional groups, namely, C-C/C-H, C-O and COOH. While all three functional groups have decreased intensity in the 350deg C baked **sample**, notably, the ratio of the two carbonoxygen groups to C-C/C-H has been reduced by 30% more than that in the 1502C baked **sample.** This study shows that high temperature baking results in a lower concentration of carbon on the internal **glass** surface of vacuum glazing. This decrease is more profound on the carbon-oxygen functional groups. Previous thermal outgassing experiments on vacuum glazing showed the emission of carbon dioxide and carbon monoxide beyond 150deg C up to 350deg C. The decrease in carbon content measured in this work could be the result of the reaction of surface carbon to form carbon dioxide and carbon monoxide during the thermal outgassing of vacuum glazing.

L3 ANSWER 15 OF 58 COMPENDEX COPYRIGHT 2006 EEI on STN
ACCESSION NUMBER: 2006(13):1155 COMPENDEX
TITLE: Electrochromic devices based on wide band-gap nanocrystalline semiconductors functionalized with polynuclear mixed valence compounds.
AUTHOR: Biancardo, M. (Riso National Laboratory, Roskilde, Denmark); Bignozzi, C.A.
MEETING TITLE: SVC, Society of Vacuum Coaters - 48th Annual Technical Conference.

MEETING LOCATION: Denver, CO, United States
MEETING DATE: 23 Apr 2005-28 Apr 2005
SOURCE: Proceedings, Annual Technical Conference - Society of Vacuum Coaters 2005.p 682-683
SOURCE: SVC, Society of Vacuum Coaters - 48th Annual Technical Conference Proceedings
CODEN: PASVBF ISSN: 0737-5921
PUBLICATION YEAR: 2005
MEETING NUMBER: 66840
DOCUMENT TYPE: Conference Article
TREATMENT CODE: Theoretical; Experimental
LANGUAGE: English
AN 2006(13):1155 COMPENDEX
AB The term electrochromism refers to the process of reversible chromatic switch by electrochemical means. Over the past years there has been a dramatic increase in electrochromic (EC) research activity, as seen in the large number of scientific papers and patents issued during this time [1]. This surge in research moved from electrochromic displays [2] to smart **windows** [3] mostly driven by the need of producing more energy efficient glazing, which can lead to a dynamic control of the transmissive materials properties. In particular, the primary advantage of an EC smart material glazing application would be **windows** transmittance correction reducing glare and daylight **heating** and cooling needs and leading to reduction in fossil fuel consumption. Nowadays, applications of "the chromogenic family" have covered a wide and developing range of technology useful for glazing, mirrors, transparent displays and a variety of other application [4]. Not surprisingly, the research field of electrochromic compounds is very broad and includes inorganic, organic, and polymeric, as well as several hybrid materials [5]. We describe in this contribution our efforts in the EC field based on the realization of electrochromic devices functionalizing wide band gap nanocrystalline semiconductors with mononuclear and polynuclear mixed valence (MV) compounds [6]. The general principle that we have followed in the molecular design of the polynuclear species is based on the introduction of a metal containing moiety, which can be directly bound to the surface of the semiconductor and can be interconverted between two oxidation states at a potential close to 0 V. This should allow maximization of the electronic coupling with the semiconductor and promotion of color changes by applying a small potential difference between the electrodes, a very important feature in regard to low energy consumption. Following this idea it was shown that the approach works in principle and a series of binuclear and trinuclear examples have been prepared and tested. They are bi- and tri-metallic ruthenium and iron systems, each metal with a distinct periphery, linked through a bridging ligand and containing anchoring groups capable of spontaneously forming of stable cova lent bonds with the surface layer, as carboxylie acids (carboxy ester linkage), phosphonic acids (phosphonate ester linkage) and boronic acid (boronic ester linkage). The idea of using polynuclear MV compounds to control the domain of the electro-induced spectral changes in the whole visible and near infrared regions employ the peculiar property of these species, related to the presence of metal-to-metal **absorption** bands in the visible and near-infrared spectral regions. These bands, which are also known as intervalence transfer bands, are due to **optical** electron transfer transitions involving bridged metal centers. Adsorption of polynuclear MV compounds on transparent nanocrystalline SnO 2/Sb or TiO2 films deposited on conductive **glass**, results in electrochromic devices where the electronic transitions, localized on the metal sub-units and the electronic transitions between the metal centers, can be controlled by the applied potential. Modulation of the transmitted light over the whole visible and NIR spectral regions can be obtained by synthetic design of the polynuclear species relying on the Hush [7] model that provides a theoretical bridge between the physical properties and the subject of electron transfer reaction in mixed valence compounds. The electrochromic devices realized possesses a high degree of flexibility thanks to the

possibility of tuning their **spectroscopic** properties through changes of metal centers and coordinating or bridging ligands. Stability tests performed in sandwich type **cells** containing dyes absorbed on nanocrystalline SnO 2/Sb electrodes, demonstrated good stability, with **optical** density changes lower than 2% after cycling the device 15000 times in a potential range -0.5 to 1 V. The device has also shown fast coloration times reaching 0.8 sec in the best case. Approaches towards a solid-state device have been made through the introduction of a polymethylmetacrylate gel electrolyte. Furthermore, in combination with a sensitizer of a wide band gap semiconductor, the MV compounds realized have shown the possibility of producing a solid state photochromic device essentially based on electron transfer processes involving the two species co-adsorbed on the nanocrystalline surface. In conclusion, we have demonstrated that mononuclear charge transfer complexes and polynuclear MV compounds exhibiting interesting electrochromic properties can be prepared and adsorbed on the surface of nanocrystalline semiconductors. **Spectroscopic** properties of the compounds can be tuned by synthetic design in accord with Hush theory. The devices realized have shown to be reversible, fast and stable over several thousands redox cycles. $CPY 2005 Society of Vacuum Coaters. 7 Refs.

L3 ANSWER 16 OF 58 COMPENDEX COPYRIGHT 2006 EEI on STN
ACCESSION NUMBER: 2006(12):13563 COMPENDEX
TITLE: Influence of Ce3+ doping on the structure and luminescence of Er 3+-doped transparent glass-ceramics.
AUTHOR: Dantelle, G. (Laboratoire de Chimie Appliquee de l'Etat Solide CNRS-UMR 7574 ENSCP, 75005 Paris, France); Mortier, M.; Vivien, D.; Patriarche, G.
SOURCE: Optical Materials v 28 n 6-7 May 2006 2006.p 638-642 CODEN: OMATET ISSN: 0925-3467
PUBLICATION YEAR: 2006
DOCUMENT TYPE: Journal
TREATMENT CODE: Theoretical; Experimental
LANGUAGE: English
AN 2006(12):13563 COMPENDEX
AB Transparent **glass**-ceramics possess high thermal and mechanical properties, easy shaping allowing fibers elaboration and easy synthesis. However, previously studied Yb:Er-doped **glass**-ceramics do not appear efficient enough for **optical** amplification at 1.5 mum in the telecommunication **window.** So, the addition of Ce3+ doping ions was performed. Oxyfluoride **glasses** (GeO 2-PbO-PbF2) doped with ErF3, YbF3 and CeF3 were prepared and **heated** above **glass** transition temperature to obtain transparent **glass** -ceramics. Such treatment brings about the precipitation of fluorite-type nanocrystallites embedded into an amorphous oxide phase. Differential Thermal Analysis shows evidence that CeF3 acts as nucleating agent for the heterogeneous crystallization of the ss-PbF2 phase. Through Transmission Electron Microscopy the morphology of these **glass**-ceramics was studied. Energy dispersive X-ray microanalysis and unit **cell** parameter study show a segregation of the three rare-earth ions inside the fluorite crystallites, forming a solid solution Pb1-x-y-zErxYbyCezF 2+x+y+z. The luminescence characteristics of the **glass**-ceramics doped with ErF3, YbF3 and CeF3 were compared to those of Yb:Er-doped **glass**-ceramics. CeF3 enables to dramatically decrease the up-conversion fluorescence of Er3+. The study of temporal dynamic of the 4I13/2 level of Er3+ reveals a cross-relaxation process between Er3+ and Ce3+. Hence, the presence of Ce3+ enables to decrease the Er3+ up-conversion fluorescence at the benefit of the fluorescence of interest at 1.5 mum, which is strongly enhanced. 8 Refs.

L3 ANSWER 17 OF 58 COMPENDEX COPYRIGHT 2006 EEI on STN
ACCESSION NUMBER: 2006(8):9575 COMPENDEX
TITLE: Deposition and characterization of Wox ionic conductor

in anodic aluminium oxide template.
AUTHOR: Zhao, Qian (ECE Department NCSU, Raleigh, NC 27695-7911, United States); Chen, Bei; Luo, Yong; Misra, Veena
MEETING TITLE: 207th Meeting of the Electrochemical Society.
MEETING LOCATION: Quebec, Canada
MEETING DATE: 15 May 2005-20 May 2005
SOURCE: Meeting Abstracts 2005.p 1378
SOURCE: 207th Meeting of the Electrochemical Society - Meeting Abstracts
ISSN: 1091-8213
PUBLICATION YEAR: 2005
MEETING NUMBER: 66443
DOCUMENT TYPE: Conference Article
TREATMENT CODE: Theoretical; Experimental
LANGUAGE: English
AN 2006(8):9575 COMPENDEX
AB Tungsten oxide base ionic conductors have been the subject of considerable research, mostly because of their application in solar **cell** as electrochromic **windows.**[1-3] However, the tungsten oxide films investigated in these reports are prepared through sol coating method[3]. As a result, it is hard to control the thickness and uniformity of the film. Also, the cracking of the film may occur during the solidification process. Recently, tungsten oxide base ionic conductors have also attracted interest from researchers in the field of microelectronics due to their potential application in non-volatile memory where the tungsten film works as the base **glass** of solid electrolyte. [4] However, sol coating method is not very suitable to integrate the solid electrolyte materials into Si based CMOS process due the problems mentioned above. Therefore, an alternative deposition method needs to be explored, and we believe that reactive sputtering is a suitable approach. W itself has been studied as a CMOS metal gate [5] and gate stack capping layer [6] in CMOS technology. Due to oxidation of W during the annealing process, WOx is also an important issue for W application. WOx was grown on SiO 2/Si (100) wafer with anodic aluminium oxide (AAO) template by introducing O2 during the W sputtering process. The oxygen composition (x) can be adjusted by changing the O2 **flow**, and the final composition of the **sample** is measured by X-ray photoelectron spectroscopy (XPS). Following the formation of the WO 2 layer, a layer of Ag (50 nm) was deposited by e-beam **heating** evaporation. This will provide mobile Ag ions for the electrolyte. Current-voltage and resistance-voltage measurements were carried out on probe station and with semiconductor parameter analyzer. Low resistivity was observed at low testing frequency, and the resistivity increased with test frequency due to the ionic mobility limit. 6 Refs.

L3 ANSWER 18 OF 58 COMPENDEX COPYRIGHT 2006 EEI on STN
ACCESSION NUMBER: 2005(35):7715 COMPENDEX
TITLE: Cadmium sulfide thin films manufactured by chemical bath deposition method.
AUTHOR: Pisarkiewicz, T. (Department of Electronics University of Mining and Metallurgy, 30-059 Krakow, Poland); Schabowska-Osiowska, E.; Kusior, E.; Kowal, A.
SOURCE: Journal of Wide Bandgap Materials v 9 n 1-2 2001.p 127-132
ISSN: 1524-511X
PUBLICATION YEAR: 2001
DOCUMENT TYPE: Journal
TREATMENT CODE: Theoretical; Experimental
LANGUAGE: English
AN 2005(35):7715 COMPENDEX
AB Cadmium sulfide thin films grown by chemical bath deposition (CBD) on commercial **glass** and **glass** covered by transparent conductive oxide (TCO) have been investigated. Both TCO and CdS are **window** layers influencing the photovoltaic response of CIS solar

cells. Optical behavior of CdS/SnO 2 bilayer is governed by tin oxide thin film characteristics. CdS films reproduce homogeneous morphology and roughness of the substrate changing the grain size from 30 nm for **glass** substrate to about 100nm for SnO 2/**glass** substrate. **Heat** treatment in air at 450deg C for 2 h does not essentially modify neither the crystalline structure nor the **optical** properties of CBD deposited CdS films. $CPY 2002 Sage Publications. 6 Refs.

L3 ANSWER 19 OF 58 COMPENDEX COPYRIGHT 2006 EEI on STN
ACCESSION NUMBER: 2004(16):6146 COMPENDEX
TITLE: Effect of Tilt Angle and Temperature Difference on Solar Heat Gain Coefficient Measurement of Fenestration System.
AUTHOR: Tseng, Ching-Chia (Dahl, Taylor and Associates, Alhambra, CA, United States); Yogi Goswami, D.
MEETING TITLE: ASHRAE 2001 Winter Meeting CD, Technical and Symposium Papers.
MEETING LOCATION: Atlanta, GA, United States
MEETING DATE: 01 Jan 2001
SOURCE: ASHRAE Winter Meeting CD, Technical and Symposium Papers 2001.p 815-821
PUBLICATION YEAR: 2001
MEETING NUMBER: 62588
DOCUMENT TYPE: Conference Article
TREATMENT CODE: Theoretical
LANGUAGE: English
AN 2004(16):6146 COMPENDEX
AB The solar **heat** gain coefficient (SHGC) of a fenestration system can be determined experimentally by two methods. One method determines the SHGC by summing the transmittance and a portion of the absorptance of a fenestration system and the other measures the SHGC by solar calorimetry. In this research, the SHGC of a fenestration system consisting of a **glass window** and a black shade was determined by using both the test methods at solar incidence angles from 20deg to 30deg , panel tilt angles of 45deg and 90deg , and various air temperature differences between the calorimeter **chamber** and the ambient. From the solar **optical** properties measured using the black box method, the SHGC of the **glass**/aluminum shade combined fenestration system was estimated to be between 0.75 and 0.83, with 0.79 being the average value for incident angles between 20deg and 30deg . Using the UF/ASHRAE solar calorimeter, SHGC for a 45deg panel tilt was measured to be 0.80, 0.76, and 0.60, respectively, for small, medium, and large air temperature differences. SHGC for a 90 deg panel tilt was measured as 0.83, 0.74, and 0.59, respectively, for small, medium, and large air temperature differences. These results show that the air temperature difference between solar calorimeter **chamber** and the ambient is the major factor that affects the SHGC measurement. Experiments from six groups for different combinations of the air temperature difference and panel tilt angles produced a standard deviation of only 2.8%. The results show that the effect of panel tilt angle from 45deg to vertical is not significant. 14 Refs.

L3 ANSWER 20 OF 58 COMPENDEX COPYRIGHT 2006 EEI on STN
ACCESSION NUMBER: 2001(44):7562 COMPENDEX
TITLE: Effect of tilt angle and temperature difference on solar heat gain coefficient measurement of fenestration system.
AUTHOR: Tseng, C.-C. (Dahl, Taylor and Associates, Santa Ana, CA, United States); Goswami, D.Y.
MEETING TITLE: ASHRAE Transactions. -2001 Winter Meeting.
MEETING LOCATION: Atalanta, GA, United States
MEETING DATE: 27 Jan 2001-31 Jan 2001
SOURCE: ASHRAE Transactions v 107 PART.1 2001.p 684-690
CODEN: ASHTAG ISSN: 0001-2505

PUBLICATION YEAR: 2001
MEETING NUMBER: 58565
DOCUMENT TYPE: Conference Article
TREATMENT CODE: Experimental
LANGUAGE: English
AN 2001(44):7562 COMPENDEX
AB The solar **heat** gain coefficient (SHGC) of a fenestration system can be determined experimentally by two methods. One method determines the SHGC by summing the transmittance and a portion of the absorptance of a fenestration system and the other measures the SHGC by solar calorimetry. In this research, the SHGC of a fenestration system consisting of a **glass window** and a black shade was determined by using both the test methods at solar incidence angles from 20deg to 30deg , panel tilt angles of 45deg and 90deg , and various air temperature differences between the calorimeter **chamber** and the ambient. From the solar **optical** properties measured using the black box method, the SHGC of the **glass**/aluminum shade combined fenestration system was estimated to be between 0.75 and 0.83, with 0.79 being the average value for incident angles between 20deg and 30deg . Using the UF/ASHRAE solar calorimeter, SHGC for a 45deg panel tilt was measured to be 0.80, 0.76, and 0.60, respectively, for small, medium, and large air temperature differences. SHGC for a 90 deg panel tilt was measured as 0.83, 0.74, and 0.59, respectively, for small, medium, and large air temperature differences. These results show that the air temperature difference between solar calorimeter **chamber** and the ambient is the major factor that affects the SHGC measurement. Experiments from six groups for different combinations of the air temperature difference and panel tilt angles produced a standard deviation of only 2.8%. The results show that the effect of panel tilt angle from 45deg to vertical is not significant. 12 Refs.

L3 ANSWER 21 OF 58 COMPENDEX COPYRIGHT 2006 EEI on STN
ACCESSION NUMBER: 2001(38):2935 COMPENDEX
TITLE: Optical and solar parameters of irradiated lead-alkali-silicate glass.
AUTHOR: Dogan, N. (Istanbul Technical University Institute for Nuclear Energy Nuclear Applications Division, 80626-Maslak, Istanbul, Turkey); Tugrul, A.B.
SOURCE: Solar Energy Materials and Solar Cells v 69 n 3 October 2001 2001.p 241-250
CODEN: SEMCEQ ISSN: 0927-0248
PUBLICATION YEAR: 2001
DOCUMENT TYPE: Journal
TREATMENT CODE: Experimental
LANGUAGE: English
AN 2001(38):2935 COMPENDEX
AB Lead-alkali-silicate **glass** that is used for a shielding **window** of hot **cells** in nuclear technology has been irradiated by a 60Co radioisotope source between 0.998 and 35.939 kGray dose levels. Gamma rays can affect **glass** and change its several **optical** and solar parameters such as secondary internal **heat** transfer factor (qi), direct solar transmittance (taue), solar factor (g) and shading coefficient via the absorbed dose. It is aimed to investigate the performance of the **glass** in terms of the shading coefficient, which is the most important parameter to view clearly inside of the hot **cell.** Furthermore, a comparative evaluation has been done with respect to the unexposed lead-alkali-silicate **glass.** Change in the shading coefficient with respect to absorbed dose is extremely important. 17 Refs.

L3 ANSWER 22 OF 58 COMPENDEX COPYRIGHT 2006 EEI on STN
ACCESSION NUMBER: 2000(47):479 COMPENDEX
TITLE: Test cell analysis of the use of a supply air window as a passive solar component.

AUTHOR: Baker, P.H. (BRE Ltd, Glasgow, UK); McEvoy, M.
SOURCE: Solar Energy v 69 n 2 2000.p 113-130
CODEN: SRENA4 ISSN: 0038-092X
PUBLICATION YEAR: 2000
DOCUMENT TYPE: Journal
TREATMENT CODE: General Review
LANGUAGE: English
AN 2000(47):479 COMPENDEX
AB A series of experiments was conducted to determine the performance characteristic of a `double' **window** used to pre-**heat** background room ventilation.A theoretical model of **heat** exchange conditions within the **window** was compared with results from a test **cell**.The test **cell** was used in different modes, firstly free-ventilated with the service room **window** and interconnecting duct to the **cell** left open, and then with forced ventilation at a consistent velocity to analyze the relative extent of direct solar and ventilation **heat** gain.A subsidiary study sought to determine the frequency of positive and negative air **flow** through trickle vents under real house conditions, this was compared with **glass** temperatures from the test **cell** measurements to assess the risk of condensation forming within the **window**.By reference to recent work on ventilated PV systems it was possible to derive a method of relating the U value and Solar **Heat** Gain Coefficient within the **window** cavity to a range of boundary conditions.(Author abstract)

L3 ANSWER 23 OF 58 COMPENDEX COPYRIGHT 2006 EEI on STN
ACCESSION NUMBER: 2000(41):4697 COMPENDEX
TITLE: First light of the OVLA active mirror with its surface heating system.
AUTHOR: Lardiere, Olivier (Cent Natl de la Recherche Scientifique, St-Michel-l'observatoire, Fr); Arnold, Luc; Dejonghe, Julien
MEETING TITLE: Optical Design, Materials, Fabrication, and Maintenance - 2000.
MEETING ORGANIZER: SPIE
MEETING LOCATION: Munich, Ger
MEETING DATE: 27 Mar 1900-29 Mar 1900
SOURCE: Proceedings of SPIE - The International Society for Optical Engineering v 4003 2000.Society of Photo-Optical Instrumentation Engineers, Bellingham, WA, USA.p 426-435
CODEN: PSISDG ISSN: 0277-786X
PUBLICATION YEAR: 2000
MEETING NUMBER: 57242
DOCUMENT TYPE: Conference Article
TREATMENT CODE: General Review
LANGUAGE: English
AN 2000(41):4697 COMPENDEX
AB The **Optical** Very Large Array (OVLA) project consists in a kilometric-size **optical** Interferometer of 27 mobile 1.5 m telescopes designed to provide high-resolution IR and visible snap-shot images.An OVLA prototype telescope has been developed at the Observatoire de Haute-Provence.It features a 1.5 m meniscus-shaped f/1.7 primary mirror weighting 200 kg including its active **cell** with 32 actuators.The mirror blank made of 24 mm-thick ordinary **window glass** is very cheap but extremely sensitive to temperature variations because of its large CTE (3 times larger than Pyrex).Indeed, the mirror shows a Z11 equals 3150 nm rms wavefront error due to a 0.5 degree C thermal gradient generated between its front and back side by an unbalanced **heat** dissipation towards the night sky and the ground.This spherical aberration, too large to be corrected by the actuators, is compensated by an uniform electrical current generated through the aluminum coating by 42 peripheral electrodes.We also describe the electrodes control hardware and present some results obtained during the first light of the

telescope.Lastly, we propose a possible upgraded surface **heating** system to adjust thermally other **optical** aberrations.(Author abstract) 10 Refs.

L3 ANSWER 24 OF 58 COMPENDEX COPYRIGHT 2006 EEI on STN
ACCESSION NUMBER: 2000(10):4553 COMPENDEX
TITLE: In-situ 119Sn Mossbauer effect studies of the reaction of lithium with SnO and SnO:0.25 B2O3:0.25 P2O5 glass.
AUTHOR: Courtney, Ian A. (Dalhousie Univ, Halifax, NS, Can); Dunlap, R.A.; Dahn, J.R.
SOURCE: Electrochimica Acta v 45 n 1 1999.p 51-58
CODEN: ELCAAV ISSN: 0013-4686
PUBLICATION YEAR: 1999
DOCUMENT TYPE: Journal
TREATMENT CODE: Experimental
LANGUAGE: English
AN 2000(10):4553 COMPENDEX
AB The electrochemical reaction of lithium with SnO and with SnO:0.25 B2O3:0.25 P2O5 **glass** was studied in-situ using119Sn Mossbauer effect spectroscopy in electrochemical **cells** equipped with beryllium **windows.** The experiments confirm our previous work that showed that the first two lithium atoms per formula unit react with the oxygen bonded to tin, forming clusters of tin metal and Li2O. As further lithium is added, the tin clusters alloy with lithium. The alloy reactions are easily observed in Mossbauer spectroscopy, even in SnO:0.25 B2O3:0.25 P2O5 **glass** was studied in-situ where X-ray diffraction did not discern the Li-Sn alloy phases well.Most interesting, however, is the dramatic variation of the total Mossbauer **absorption** intensity as a function of the amount of lithium that has reacted with the electrode. Since the number of tin atoms in the **sample** is constant as the lithium content changes, such intensity variations can only be caused by changes in the fraction of Sn atoms undergoing recoil-free **absorption.** The recoil-free fraction depends on the mean square displacement of the tin atoms from their equilibrium positions.This, in turn, depends on the size of the grains of the Li-Sn alloys and upon the nature of the bonding in the alloy phases, as reflected in their Debye temperatures or in their **melting** points.(Author abstract) 24 Refs.

L3 ANSWER 25 OF 58 COMPENDEX COPYRIGHT 2006 EEI on STN
ACCESSION NUMBER: 1998(9):2439 COMPENDEX
TITLE: Simulation study on an air flow window system with an integrated roll screen.
AUTHOR: Tanimoto, J. (Kyushu Univ, Fukuoka, Jpn); Kimura, K.
SOURCE: Energy and Buildings v 26 n 3 Oct 1997.p 317-325
CODEN: ENEBDR ISSN: 0378-7788
PUBLICATION YEAR: 1997
DOCUMENT TYPE: Journal
TREATMENT CODE: Application; Theoretical; Experimental
LANGUAGE: English
AN 1998(9):2439 COMPENDEX
AB A numerical calculation procedure for an air **flow window** (AFW) system integrated with a roll screen is presented.Both **heat** and air **flows** within the **window** elements such as the outside pane of **glass**, the outside air space, a Venetian blind, the inside air space and a roll screen, are taken into account by considering the thermal and air **flow** networks.Agreements between measured and calculated results of temperatures and pressure differences through a series of experiments carried out in an environmental test **chamber** were observed.To identify the quantitative characteristics of an AFW integrated with a roll screen, a series of numerical simulations were performed with the results from using a large resistance to the air **flow** from the upper half area of the roll screen.These show that this was effective in terms of thermal characteristics and suggest that a tightly-meshed roll screen, situated in the upper half area, is suitable

for both environmental and design reasons.If the **heated** air **flow** generated from the inside air space to the room were dispersed properly, the thermal efficiency of the AFW integrated with a roll screen would be equal to a conventional AFW system.The effect of a cold draft passing though the roll screen is also discussed.(Author abstract) 11 Refs.

L3 ANSWER 26 OF 58 COMPENDEX COPYRIGHT 2006 EEI on STN
ACCESSION NUMBER: 1998(4):3169 COMPENDEX
TITLE: Chemical vapor deposition of coatings on glass.
AUTHOR: Gordon, Roy (Harvard Univ, Cambridge, MA, USA)
MEETING TITLE: Proceedings of the 1997 1st International Conference on Coatings on Glass - ICCG.
MEETING LOCATION: Saarbrucken, Ger
MEETING DATE: 27 Oct 1997-31 Oct 1997
SOURCE: Journal of Non-Crystalline Solids v 218 Sep 2 1997.p 81-91
CODEN: JNCSBJ ISSN: 0022-3093
PUBLICATION YEAR: 1997
MEETING NUMBER: 47376
DOCUMENT TYPE: Journal
TREATMENT CODE: Application; Bibliography
LANGUAGE: English
AN 1998(4):3169 COMPENDEX
AB Chemical vapor deposition has been used to deposit films of a wide variety of materials.Those of particular interest to the **glass** industry include coatings of silicon, titanium nitride, and the oxides of silicon, aluminum, tin, zinc and transition metals, which can add very useful electrical and **optical** properties to **glass.** Several different chemical sources and reactions are used to deposit these materials.Comparison of these processes will be made in terms of ease of use of the precursors, attainable deposition rates, and safety and cost of the precursors.Equipment has been developed to deposit these materials with excellent thickness uniformity over large areas of **glass** .Fluorine-doped tin oxide and zinc oxide efficiently reflect infrared **heat** (low emissivity), thereby increasing the insulating ability of **windows.**These materials also conduct electricity, leading to a variety of applications, including solar **cells**, flat-panel displays, touch control panels, and static dissipation.Titanium nitride provides near-infrared reflectivity, which can provide high-performance rejection of solar **heat** (solar control **glass**).Silicon/silicon dioxide/silicon trilayers form durable mirror coatings with high reflectivity to visible light.Amorphous aluminum oxide films are excellent barriers to diffusion of sodium out of soda-lime **glass** . (Author abstract) 66 Refs.

L3 ANSWER 27 OF 58 COMPENDEX COPYRIGHT 2006 EEI on STN
ACCESSION NUMBER: 1994(2):3173 COMPENDEX
TITLE: Effects of KrF laser radiation on fused-silica glass: a comparison of samples exposed in air vs vacuum.
AUTHOR: Pour, Iraj K. (IBM Almaden Research Cent., San Jose, CA, USA); Krajnovich, Douglas J.; Tam, Andrew C.; Leung, Wing P.; Kulkarni, Murli V.
MEETING TITLE: Proceedings of the 24th Annual Boulder Damage Symposium Laser-Induced Damage in Optical Materials: 1992.
MEETING ORGANIZER: Lawrence Livermore Natl.Lab, Livermore, CA USA; Natl Inst of Standards and Technology, Washington, DC USA; Naval Air Warfare Cent, China Lake, CA USA; Sandia Natl.Lab, Albuquerque, NM USA; SPIE - Int Soc for Opt Engineering, Bellingham, WA USA; et.al
MEETING LOCATION: Boulder, CO, USA
MEETING DATE: 28 Oct 1992-30 Oct 1992
SOURCE: Proceedings of SPIE - The International Society for Optical Engineering v 1848 1993.Publ by Society of

Photo-Optical Instrumentation Engineers, Bellingham, WA, USA.p 561-572
CODEN: PSISDG ISSN: 0277-786X
ISBN: 0-8194-1075-6
PUBLICATION YEAR: 1993
MEETING NUMBER: 19469
DOCUMENT TYPE: Conference Article
TREATMENT CODE: Experimental
LANGUAGE: English
AN 1994(2):3173 COMPENDEX
AB High-purity synthetic **fused** silica **glass** is known to undergo changes in **optical** properties during high repetition rate KrF laser exposures.(Results of studies on six **glass** types irradiated in air are summarized elsewhere at this symposium.) We have also irradiated several **samples** in vacuum (248 nm, 300 Hz, Phi equals 400 mJ/cm2).Transmission at 248 nm, transmission at 210 nm, fluorescence at 650 nm, and vacuum **cell** pressure were monitored in real time.Although bulk outgassing is expected to be very slow at room temperature, our results indicate that the vacuum environment does affect the interior of the **sample.**Furthermore, a curious irradiation effect on the transmission of the CaF2 **windows** used on the vacuum **cell** is discussed.15 refs.

L3 ANSWER 28 OF 58 COMPENDEX COPYRIGHT 2006 EEI on STN
ACCESSION NUMBER: 1990(2):24011 COMPENDEX
DOCUMENT NUMBER: 900222854
TITLE: Characterization of window layers in CuInSe2 thin-film solar cells.
AUTHOR: Shafarman, W.N. (Univ of Delaware, Inst of Energy Conversion, Newark, DE, USA); Birkmire, R.W.
MEETING TITLE: Twentieth IEEE Photovoltaic Specialists Conference - 1988.
MEETING LOCATION: Las Vegas, NV, USA
MEETING DATE: 26 Sep 1988-30 Sep 1988
SOURCE: Conference Record of the IEEE Photovoltaic Specialists Conference Vol II (of 2).Publ by IEEE, IEEE Service Center, Piscataway, NJ, USA.Available from IEEE Service Cent (cat n 88CH2527-0), Piscataway, NJ, USA.p 1515-1519
CODEN: CRCNDP ISSN: 0160-8371
PUBLICATION YEAR: 1988
MEETING NUMBER: 12741
DOCUMENT TYPE: Conference Article
TREATMENT CODE: Experimental; Theoretical
LANGUAGE: English
AN 1990(2):24011 COMPENDEX DN 900222854
AB Electrical and **optical** properties of (CdZn)S:In, (CdZn)S:In/ITO, and ZnO **windows** in CuInSe2 thin-film solar **cells** were measured and compared to the properties of equivalent **window** layers deposited on **glass.**The resistivity and **absorption** edge of (CdZn)S:In films are characterized as a function of In dopant concentration and Zn content, and it is shown that the Burstein-Moss shift decreases as the Zn content is raised.Air **heat** treatments, used to increase Voc and efficiency of CuInSe2 **cells**, increase the resistivity and decrease the **absorption** edge of (CdZn)S:In **window** layers. CuInSe2/ZnO **cells** are shown to have higher Jsc than **cells** with (CdZn)S **windows** but low Voc and efficiency.8 Refs.

L3 ANSWER 29 OF 58 COMPENDEX COPYRIGHT 2006 EEI on STN
ACCESSION NUMBER: 1990(1):5740 COMPENDEX
DOCUMENT NUMBER: 90014862
TITLE: Experimental investigation of heat and mass exchange in the chamber of a model greenhouse by the method of holographic interferometry.

AUTHOR: Vardiashvili, A.B. (Kh.Alimdzhan Karshi State Pedagogical Inst, USSR); Sharopova, T.A.; Zhuravlev, A.V.
SOURCE: Appl Sol Energy v 24 n 6 1988 p 38-42
CODEN: ASOEA6 ISSN: 0003-701X
PUBLICATION YEAR: 1988
DOCUMENT TYPE: Journal
TREATMENT CODE: Experimental
LANGUAGE: English
AN 1990(1):5740 COMPENDEX DN 90014862
AB To study the effect of geometric proportions, shape of the coverings, and distribution of **heating** sources on the ground of greenhouses, the authors suggest visualization with the help of holographic interference.A model greenhouse was made from acrylic plastic with **windows** of **optical glass.**The temperature-controlled floor provided controllable conditions of **heating** the **chamber** from the bottom.The **chamber** was filled with water, which makes it possible to visualize the **heat** fields in a cross section of the model with small temperature gradients (0-20 degree C). Measurement of distortions in the interference bands through the field make it possible to construct temperature profiles depending on the temperature difference on the enclosing walls and the distribution of the Nusselt number in a layer depending on the distance from the **heated** walls, and to evaluate the final thickness of the boundary layer depending on Delta T.1 Reference

L3 ANSWER 30 OF 58 COMPENDEX COPYRIGHT 2006 EEI on STN
ACCESSION NUMBER: 1978(4):116 COMPENDEX
DOCUMENT NUMBER: 780429374
TITLE: INFRARED CELL WITH SILICON WINDOWS FOR SOLID SORPTION SYSTEMS.
AUTHOR: Moeller, K. (Acad of Sci of the GDR, Cent Inst of Phys Chem, Berlin, E Ger); Kunath, D.
SOURCE: J Phys E Sci Instrum v 10 n 10 Oct 1977 p 962-964
CODEN: JPSIAE
PUBLICATION YEAR: 1977
LANGUAGE: English
AN 1978(4):116 COMPENDEX DN 780429374
AB A double cylindrical **cell** made of **glass** with silicon **windows** 0.1-0.2 mm apart is used for infrared transmission spectrophotometry of solid sorption systems. In practice, the **sample** beam of the spectrometer passes only through the solid sorption system; the background transmittance of the **cell** is about 25%; and the leak rate is smaller than 10-8 Pa m3 s-1. The complete **cell** can be **heated** up to 720 K. 13 refs.

L3 ANSWER 31 OF 58 COMPENDEX COPYRIGHT 2006 EEI on STN
ACCESSION NUMBER: 1977(2):6256 COMPENDEX
DOCUMENT NUMBER: 770211688
TITLE: PHOTOACOUSTIC METHODS FOR MEASURING SURFACE AND BULK **ABSORPTION** COEFFICIENTS IN HIGHLY TRANSPARENT MATERIALS: THEORY OF A GAS **CELL.**
AUTHOR: Bennett, Herbert S. (US NBS, Washington, DC); Forman, Richard A.
SOURCE: Appl Opt v 15 n 10 Oct 1976 p 2405-2413
CODEN: APOPAI
PUBLICATION YEAR: 1976
LANGUAGE: English
AN 1977(2):6256 COMPENDEX DN 770211688
AB Procedures are presented here by which one may determine separately the surface **absorption** and the bulk **absorption** coefficients. For the case in which a laser beam modulated at angular frequencyomegapasses through the weakly absorbing **windows** of a gas **cell** containing a nonabsorbing gas, the temperature profiles in the **cell windows** and the temperature and acoustic

pressure or stress profiles in the gas are calculated. These calculations indicate that for sufficiently low frequencies and high ambient gas pressure, enough **heat** transfers from the **cell** **windows** to the gas to produce a detectable acoustic pressure signal at angular frequencyomegain the gas. These calculations make it possible to state the necessary measurements for determining the surface and bulk **absorption** coefficients. Measuring the acoustic stress amplitude at the fundamental and higher harmonic frequencies and measuring the phase shifts of the frequency components of the acoustic stress with respect to the modulated laser beam give the necessary data. Numerical examples for a representative laser **glass** and air (nitrogen) are given. 16 refs.

L3 ANSWER 32 OF 58 COMPENDEX COPYRIGHT 2006 EEI on STN
ACCESSION NUMBER: 1976(5):3780 COMPENDEX
DOCUMENT NUMBER: 760533199
TITLE: **ABSORPTION** COEFFICIENTS OF WEAKLY ABSORBING SOLIDS: THEORY OF A BAROTHERMAL GAS **CELL.**
AUTHOR: Bennett, Herbert S. (NBS, Washington, DC); Forman, Richard A.
SOURCE: Appl Opt v 15 n 2 Feb 1976 p 347-352 CODEN: APOPAI
PUBLICATION YEAR: 1976
LANGUAGE: English
AN 1976(5):3780 COMPENDEX DN 760533199
AB For the case in which a laser beam passes through the weakly absorbing **windows** of a cell containing a nonabsorbing gas, the temperature profiles in the cell **windows** and the pressure and temperature profiles in the gas have been calculated. Both the transient response and steady-state behavior of the cell are examined when the barothermal conditions are valid. These calculations suggest that sufficient **heat** transfers by thermal conduction from the weakly absorbing **windows** into the gas to produce a measurable pressure rise in the gas. Numerical examples for a laser **glass** and air (nitrogen) are given. 12 refs.

L3 ANSWER 33 OF 58 COMPENDEX COPYRIGHT 2006 EEI on STN
ACCESSION NUMBER: 1972(1):5639 COMPENDEX
DOCUMENT NUMBER: 72015954
TITLE: Solder glasses.
AUTHOR: HOGAN RE (Corning Glass Works, Corning, NY)
SOURCE: Chem Tech Jan 1971 p 41-3
PUBLICATION YEAR: 1971
LANGUAGE: English
AN 1972(1):5639 COMPENDEX DN 72015954
AB **Glasses** that **melt** at low temperatures (solder **glasses**) are useful for sealing **glass** to **glass**, metal or ceramic. This paper discusses types, uses, and sealing of solder **glasses.** Differential expansion tables show at a glance which materials make matching seals. Although a relatively new technique for joining two components, use of solder **glass** is now recognized as an economical means of sealing. With furnace controls and minimal temperatures, a consistently reliable, mass- produced seal is available in many new applications never before possible. Chemical technology uses such as sealing **windows** into **optical** instrument **cells**,acuum line applications, coating autoclaves, and even possibly repairing **glass** liners, suggest themselves. Solder **glasses** have good thermal properties and are resistant to organic materials, but are not considered extremely durable when subjected to acid or alkali solutions for long periods of time. 05954

L3 ANSWER 34 OF 58 INSPEC (C) 2006 IET on STN
ACCESSION NUMBER: 2002:7429491 INSPEC
DOCUMENT NUMBER: A2002-23-8115L-040; B2002-12-0520J-017
TITLE: Cadmium sulfide thin films manufactured by chemical

bath deposition method
AUTHOR: Pisarkiewicz, T.; Schabowska-Osiowska, E.; Kusior, E.; (Dept. of Electron., Univ. of Min. & Metall., Krakow, Poland), Kowal, A.
SOURCE: Journal of Wide Bandgap Materials (July-Oct. 2001), vol.9, no.1-2, p. 127-32, 6 refs.
CODEN: JWBMFT, ISSN: 1524-511X
SICI: 1524-511X(200107/10)9:1/2L.127:CSTF;1-D
Price: 1524-511X/01/1-20127-6$10.00/0
Published by: Sage Publications, UK
DOCUMENT TYPE: Journal
TREATMENT CODE: Practical; Experimental
COUNTRY: United Kingdom
LANGUAGE: English
AN 2002:7429491 INSPEC DN A2002-23-8115L-040; B2002-12-0520J-017
AB Cadmium sulfide thin films grown by chemical bath deposition (CBD) on commercial **glass** and **glass** covered by transparent conductive oxide (TCO) have been investigated. Both TCO and CdS are **window** layers influencing the photovoltaic response of CIS solar **cells. Optical** behavior of CdS/SnO2 bilayer is governed by tin oxide thin film characteristics. CdS films reproduce homogeneous morphology and roughness of the substrate changing the grain size from 30 nm for **glass** substrate to about 100 nm for SnO2/**glass** substrate. **Heat** treatment in air at 450°C for 2h does not essentially modify neither the crystalline structure nor the **optical** properties of CBD deposited CdS films

L3 ANSWER 35 OF 58 INSPEC (C) 2006 IET on STN
ACCESSION NUMBER: 2002:7154015 INSPEC
DOCUMENT NUMBER: A2002-04-8115L-035; B2002-02-0520J-039
TITLE: Cadmium sulfide thin films manufactured by chemical bath deposition method
AUTHOR: Pisarkiewicz, T.; Schabowska-Osiowska, E.; Kusior, E. (Dept. of Electron., Univ. of Min. & Metall., Krakow, Poland)
SOURCE: 3rd International Conference `Novel Applications of Wide Bandgap Layers' Abstract Book (Cat. No.01EX500), 2001, p. 115-16 of 207 pp., Also available on CD-ROM in PDF format
Editor(s): Szmidt, J.; Werbowy, A.
ISBN: 0 7803 7136 4
Price: 0-7803-7136-4/01/$10.00
Published by: IEEE, Piscataway, NJ, USA
Conference: 3rd International Conference `Novel Applications of Wide Bandgap Layers', Zakopane, Poland, 26-30 June 2001
Sponsor(s): KEiT; Polish Acad. Sci.; State Committee for Sci. Res.; IEEE Poland Sect
DOCUMENT TYPE: Conference; Conference Article
TREATMENT CODE: Practical; Experimental
COUNTRY: United States
LANGUAGE: English
AN 2002:7154015 INSPEC DN A2002-04-8115L-035; B2002-02-0520J-039
AB The objective of this work was the investigation of CdS grown by CBD on commercial **glass** and **glass** covered by transparent conductive oxide (TCO) substrates. Both TCO and CdS are **window** layers influencing the photovoltaic response of the **cell.** CBD technology offers the possibility of the deposition of a thin uniform film with a minimal thickness on a rough substrate surface. CBD growth of CdS using uncoated **glass** substrates enabled optimization of deposition parameters, e.g. concentrations of CdSO4, NH3 and thiourea SC(NH2), bath temperature and deposition time. Successively **glass** plates coated with TCO (SnO2, ZnO) layers were used as substrates. Both as-grown and air-annealed **samples** were studied. Investigation of **optical** transmission in the range 350 - 2200 nm, using

Perkin - Elmer Lambda 19 spectrophotometer enabled the evaluation of **heat** treatment and selected technological parameters on CdS and CdS/ TCO bilayer **optical** properties. SEM and AFM surface morphology investigations indicate that CdS films reproduce morphology and roughness of the polycrystalline TCO sublayer. That conformal growth and thickness uniformity of cadmium sulfide thin films deposited by CBD technique are presumably the main reasons of their superior quality as buffer layers in CIS solar **cells**

L3 ANSWER 36 OF 58 INSPEC (C) 2006 IET on STN
ACCESSION NUMBER: 2001:7091029 INSPEC
DOCUMENT NUMBER: A2001-24-4280Y-001
TITLE: Optical and solar parameters of irradiated lead-alkali-silicate glass
AUTHOR: Dogan, N.; Tugrul, A.B. (Inst. for Nucl. Energy, Istanbul Tech. Univ., Turkey)
SOURCE: Solar Energy Materials and Solar Cells (Oct. 2001), vol.69, no.3, p. 241-50, 17 refs.
CODEN: SEMCEQ, ISSN: 0927-0248
SICI: 0927-0248(200110)69:3L.241:OSPI;1-8
Price: 0927-0248/2001/$20.00
Doc.No.: S0927-0248(00)00393-7
Published by: Elsevier, Netherlands
DOCUMENT TYPE: Journal
TREATMENT CODE: Experimental
COUNTRY: Netherlands
LANGUAGE: English
AN 2001:7091029 INSPEC DN A2001-24-4280Y-001
AB Lead-alkali-silicate **glass** that is used for a shielding **window** of hot **cells** in nuclear technology has been irradiated by a 60Co radioisotope source between 0.998 and 35.939 kGray dose levels. Gamma rays can affect **glass** and change several **optical** and solar parameters such as secondary internal **heat** transfer factor (qi), direct solar transmittance (τe), solar factor (g) and shading coefficient via the absorbed dose. Our aim is to investigate the performance of the **glass** in terms of the shading coefficient, which is the most important parameter to view clearly inside of the hot **cell.** Furthermore, a comparative evaluation has been done with respect to the unexposed lead-alkali-silicate **glass.** The change in the shading coefficient with respect to absorbed dose is extremely important

L3 ANSWER 37 OF 58 INSPEC (C) 2006 IET on STN
ACCESSION NUMBER: 2001:6840959 INSPEC
DOCUMENT NUMBER: A2001-06-9555-043
TITLE: First light of the OVLA active mirror with its surface heating system
AUTHOR: Lardiere, O.; Arnold, L.; (CNRS, Obs. de Haute-Provence, France), Dejonghe, J.
SOURCE: Proceedings of the SPIE - The International Society for Optical Engineering (2000), vol.4003, p. 426-35, 10 refs.
CODEN: PSISDG, ISSN: 0277-786X
SICI: 0277-786X(2000)4003L.426:FLOA;1-8
Price: 0277-786X/2000/$15.00
Published by: SPIE-Int. Soc. Opt. Eng, USA
Conference: Optical Design, Materials, Fabrication, and Maintenance, Munich, Germany, 27-29 March 2000
Sponsor(s): SPIE; Eur. Southern Obs
DOCUMENT TYPE: Conference; Conference Article; Journal
TREATMENT CODE: Experimental
COUNTRY: United States
LANGUAGE: English
AN 2001:6840959 INSPEC DN A2001-06-9555-043
AB The **Optical** Very Large Array (OVLA) project consists in a

kilometric-size **optical** interference of 27 mobile 1.5 m telescopes designed to provide high-resolution IR and visible snap-shot images. An OVLA prototype telescope has been developed at the Observatoire de Haute-Provence. It features a 1.5 m meniscus-shaped f/1.7 primary mirror weighing 200 kg including its active **cell** with 32 actuators. The mirror blank made of 24 mm-thick ordinary **window glass** is very cheap but extremely sensitive to temperature variations because of its large CTE (3 times larger than Pyrex). Indeed, the mirror shows a Z11 = 3150 nm RMS wavefront error due to a 0.5°C thermal gradient generated between its front and back side by an unbalanced **heat** dissipation towards the night sky and the ground. This spherical aberration, too large to be corrected by the actuators, is compensated by an uniform electrical current generated through the aluminum coating by 42 peripheral electrodes. We also describe the electrodes control hardware and present some results obtained during the first light of the telescope. Lastly, we propose a possible upgraded surface **heating** system to adjust thermally other **optical** aberrations

L3 ANSWER 38 OF 58 INSPEC (C) 2006 IET on STN

ACCESSION NUMBER: 2000:6747155 INSPEC
DOCUMENT NUMBER: A2000-23-8115C-019; B2000-12-0520B-014
TITLE: RF sputter deposition of the high-quality intrinsic and n-type ZnO window layers for Cu(In,Ga)Se2-based solar cell applications
AUTHOR: Lee, J.C.; Kang, K.H.; Kim, S.K.; Yoon, K.H.; Park, I.J.; Song, J. (Photovoltaic Res. Team, Korea Inst. of Energy Res., Taejon, South Korea)
SOURCE: Solar Energy Materials and Solar Cells (30 Sept. 2000), vol.64, no.2, p. 185-95, 15 refs.
CODEN: SEMCEQ, ISSN: 0927-0248
SICI: 0927-0248(20000930)64:2L.185:SDHQ;1-V
Price: 0927-0248/2000/$20.00
Doc.No.: S0927-0248(00)00069-6
Published by: Elsevier, Netherlands
DOCUMENT TYPE: Journal
TREATMENT CODE: Experimental
COUNTRY: Netherlands
LANGUAGE: English

AN 2000:6747155 INSPEC DN A2000-23-8115C-019; B2000-12-0520B-014

AB Transparent ZnO films were prepared by RF magnetron sputtering, and their electrical, **optical**, and structural properties were investigated under various sputtering conditions. Aluminum-doped n-type(n-ZnO) and undoped intrinsic-ZnO (i-ZnO) layers were deposited on a **glass** substrate by incorporating different targets in the same reaction **chamber.** The n-ZnO films were strongly affected by argon ambient pressure and substrate temperature, and films deposited at 2 mTorr and 100°C showed superior properties in resistivity, transmission, and figure of merit (FOM). The sheet resistance of ZnO film was less dependent on film thickness when the substrate was **heated** during deposition. These positive effects of elevated substrate temperature are presumably attributed to the rearrangement of the sputtered atoms by the **heat** energy. Also, the films are electrically uniform through the 5 cm+5 cm substrate. The maximum deviation in sheet resistance is less than 10%. All of the films showed strong (002) diffraction peak near 2θ=34°. The undoped i-ZnO films deposited in the mixture of argon and oxygen gases showed high transmission properties in the visible range, independent of the Ar/O2 ratio, while resistivity rose with increased oxygen partial pressure. The Cu(In,Ga)Se2 solar **cells**, incorporating bi-layer ZnO films (n-ZnO/i-ZnO) as **window** layer, were finally fabricated. The fabricated solar **cells** showed 14.48% solar efficiency under AM 1.5 conditions (100 mW/cm2)

L3 ANSWER 39 OF 58 INSPEC (C) 2006 IET on STN

ACCESSION NUMBER: 2000:6741080 INSPEC
DOCUMENT NUMBER: A2000-23-4280E-001
TITLE: Test cell analysis of the use of a supply air window as a passive solar component
AUTHOR: Baker, P.H.; (Scottish Lab., BRE Ltd., Glasgow, UK), McEnvoy, M.
SOURCE: Solar Energy (2000), vol.69, no.2, p. 113-30, 8 refs.
CODEN: SRENA4, ISSN: 0038-092X
SICI: 0038-092X(2000)69:2L.113:TCAS;1-9
Price: 0038-092X/2000/$20.00
Doc.No.: S0038-092X(00)00048-7
Published by: Elsevier, USA
DOCUMENT TYPE: Journal
TREATMENT CODE: Experimental
COUNTRY: United States
LANGUAGE: English
AN 2000:6741080 INSPEC DN A2000-23-4280E-001
AB A series of experiments was conducted to determine the performance characteristic of a "double" **window** used to pre-**heat** background room ventilation. A theoretical model of **heat** exchange conditions within the **window** was compared with results from a test **cell.** The test **cell** was used in different modes, firstly free-ventilated with the service room **window** and interconnecting duct to the **cell** left open, and then with forced ventilation at a consistent velocity to analyse the relative extent of direct solar and ventilation **heat** gain. A subsidiary study sought to determine the frequency of positive and negative air **flow** through trickle vents under real house conditions, this was compared with **glass** temperatures from the test **cell** measurements to assess the risk of condensation forming within the **window.** By reference to work on ventilated PV systems it was possible to derive a method of relating the U value and solar **heat** gain coefficient within the **window** cavity to a range of boundary conditions

L3 ANSWER 40 OF 58 INSPEC (C) 2006 IET on STN
ACCESSION NUMBER: 2000:6565165 INSPEC
DOCUMENT NUMBER: A2000-10-8115L-023; B2000-05-0520J-039
TITLE: Molten salt route for ZnSe high-temperature electrosynthesis
AUTHOR: Sanchez, S.; Lucas, C.; Picard, G.S.; (Lab. d'Electrochimie Anal. et Appliquee, Ecole Nat. Superieure de Chimie, Paris, France), Bermejo, M.R.; Castrillejo, Y.
SOURCE: Thin Solid Films (21 Feb. 2000), vol.361-362, p. 107-12, 28 refs.
CODEN: THSFAP, ISSN: 0040-6090
SICI: 0040-6090(20000221)361/362L.107:MSRZ;1-3
Price: 0040-6090/2000/$20.00
Doc.No.: S0040-6090(99)00858-5
Published by: Elsevier, Switzerland
Conference: 1999 E-MRS Conference, Symposium O: Chalcogenide Semiconductors for Photovoltaics, Strasbourg, France, 1-4 June 1999
DOCUMENT TYPE: Conference; Conference Article; Journal
TREATMENT CODE: Experimental
COUNTRY: Switzerland
LANGUAGE: English
AN 2000:6565165 INSPEC DN A2000-10-8115L-023; B2000-05-0520J-039
AB Electrosynthesis appears as one of the best methods to prepare advanced materials under the form of coatings or thin layers. The advantages of such a process are economic (low investment for an easy composition control and large area deposition) and ecologic (no product loss). Yet, aqueous electrolysis exhibits two serious drawbacks: the low crystallinity of the electrodeposited material (due to the low working

temperature) and the hydrogen discharge (preventing electrodeposition of very electronegative elements as Ga). In this context, using high-temperature molten salts as electrolytes is a promising way to elaborate materials with tailored structures and properties. This method was successfully applied to the electrodeposition of the semiconductor ZnSe which is a good candidate for **window** layers in thin film solar cells. Electrochemical investigations performed in molten CaCl2-NaCl mixture at 550°C are reported. ZnSe was electrodeposited on **glass** sheets covered with SnO2. Optimized **melt** composition and potential led to yellow, transparent and adherent thin films containing up to 90% well crystallized ZnSe with a ratio Zn/Se close to 1 and a 1-mm grain size. The energy band gap measured is 2.5 eV

L3 ANSWER 41 OF 58 INSPEC (C) 2006 IET on STN
ACCESSION NUMBER: 2000:6495156 INSPEC
DOCUMENT NUMBER: C2000-03-3365-004
TITLE: Modeling, simulation and temperature control design of a test "chamber"
AUTHOR: Zupancic, B.; (Fac. of Electr. Eng., Ljubljana Univ., Slovenia), Krainer, A.; Skrjanc, I.
SOURCE: SCSC. 30th Anniversary 1998. Proceedings of the Summer Computer Simulation Conference, 1998, p. 173-8 of xvi+696 pp., 7 refs.
Editor(s): Obaidat, M.S.; Davoli, F.; DeMarinis, D.
ISBN: 1 56555 149 4
Published by: SCS, San Diego, CA, USA
Conference: Proceedings of Summer Computer Simulation Conference (SCSC'98), Reno, NV, USA, 19-22 July 1998
DOCUMENT TYPE: Conference; Conference Article
TREATMENT CODE: Theoretical
COUNTRY: United States
LANGUAGE: English
AN 2000:6495156 INSPEC DN C2000-03-3365-004
AB The goal was to develop temperature control of a physical system-a test "**chamber**". A simplified mathematical model, which gives the dependence of external temperature, solar radiant **flows** and artificial **heating** on the internal **chamber** temperature, was developed. The approach was a combination of theoretical (mathematical) and experimental modelling. The first part is the modelling of **heat** dynamics caused by **heat** conduction. The **heat flows** were modelled with the aid of energy balance equations. The second part of the **heat** dynamics is caused by solar radiation. In this case the transfer of sun rays through the **glass window** was studied. In both cases several simplifications were introduced. Some model constants were determined experimentally comparing experimental and simulation results. The developed simulation model was used for the design of temperature control inside the **chamber.** Several control algorithms were designed, compared and validated with regard to the **heater** switching frequency, power consumption and integral square error criterion. The selection of the particular algorithm depends on the concrete requirements for the control system performance

L3 ANSWER 42 OF 58 INSPEC (C) 2006 IET on STN
ACCESSION NUMBER: 1998:5883284 INSPEC
DOCUMENT NUMBER: B1998-05-0520-010
TITLE: Spray-deposited metal oxide films with various properties for micro- and optoelectronic applications: growth and characterization
AUTHOR: Malik, A.; Seco, A.; (CEMOP-UNINOVA, FCT-UNL, Lisboa, Portugal), Nunes, R.; Vieira, M.; Fortunato, E.; Martins, R.
SOURCE: Flat Panel Display Materials III. Symposium, 1997, p. 47-52 of xi+338 pp., 6 refs.

Editor(s): Fulks, R.T.; Parsons, G.N.; Slobodin, D.E.; Yuzuriha, T.H.
ISBN: 1 55899 375 4
Published by: Mater. Res. Soc, Pittsburgh, PA, USA
Conference: Flat Panel Display Materials III. Symposium, San Francisco, CA, USA, 31 March-3 April 1997
DOCUMENT TYPE: Conference; Conference Article
TREATMENT CODE: Application; Practical; Experimental
COUNTRY: United States
LANGUAGE: English
AN 1998:5883284 INSPEC DN B1998-05-0520-010
AB This work reports the structure and electro-optical characteristics of different metal oxide films, including highly transparent and conductive Sn-doped In2O3 (ITO), F-doped SnO2 (FTO), and In-doped ZnO (IZO) films, obtained by spray pyrolysis on heated glass substrates, with a view to their application in optoelectronic devices. The results show that this technique leads to thin films with properties ranging from dielectric to degenerate semiconductors, offering the following advantages: simplicity, low cost, high productivity and the possibility of covering large areas, highly important for large area device applications

L3 ANSWER 43 OF 58 INSPEC (C) 2006 IET on STN
ACCESSION NUMBER: 1998:5803397 INSPEC
DOCUMENT NUMBER: A1998-04-4278H-007; B1998-02-4190F-030
TITLE: Preparation and characterization of super-water-repellent Al2O3 coating films with high transparency
AUTHOR: Minami, T.; Katata, N.; Tadanaga, K. (Dept. of Appl. Mater. Sci., Osaka Prefectural Univ., Sakai, Japan)
SOURCE: Proceedings of the SPIE - The International Society for Optical Engineering (1997), vol.3136, p. 168-75, 12 refs.
CODEN: PSISDG, ISSN: 0277-786X
SICI: 0277-786X(1997)3136L.168:PCSW;1-Y
Price: 0277-786X/97/$10.00
Published by: SPIE-Int. Soc. Opt. Eng, USA
Conference: Sol-Gel Optics IV, San Diego, CA, USA, 30 July-1 Aug. 1997
Sponsor(s): SPIE
DOCUMENT TYPE: Conference; Conference Article; Journal
TREATMENT CODE: Experimental
COUNTRY: United States
LANGUAGE: English
AN 1998:5803397 INSPEC DN A1998-04-4278H-007; B1998-02-4190F-030
AB Alumina thin films with a roughness of 20 to 50 nm were formed by immersing the porous alumina gel films prepared by the sol-gel method in boiling water. When hydrolyzed fluoroalkyltrimethoxysilane was coated on the alumina films, the films showed super-water-repellency and high transparency; the contact angle for water of the film was 165° and the transmittance for visible light was higher than 92%. When the fluoroalkyltrimethoxysilane-coated thin films were heat-treated at temperatures higher than 500°C, the films became super-hydrophilic; the contact angle for water on the films was less than 5°. It was shown the existence of air in the pores on the surface caused the super-water-repellency and that of water in the pores caused the super-hydrophilic property. The transparent, super water-repellent and super-hydrophilic coating films formed on glasses, metals, and ceramics have practical applications such as **optical** lenses, eye-glasses, cover glasses for solar **cells**, windshields of automobiles, and so on

L3 ANSWER 44 OF 58 INSPEC (C) 2006 IET on STN
ACCESSION NUMBER: 1997:5757012 INSPEC
DOCUMENT NUMBER: A1998-01-8115H-008; B1998-01-0520F-015

TITLE: Chemical vapor deposition of coatings on glass
AUTHOR: Gordon, R. (Dept. of Chem., Harvard Univ., Cambridge, MA, USA)
SOURCE: Journal of Non-Crystalline Solids (Sept. 1997), vol.218, p. 81-91, 66 refs.
CODEN: JNCSBJ, ISSN: 0022-3093
SICI: 0022-3093(199709)218L.81:CVDC;1-Y
Price: 0022-3093/97/$17.00
Doc.No.: S0022-3093(97)00198-1
Published by: Elsevier, Netherlands
Conference: Coating on Glass. First International Conference. Advanced Technologies and Future Trends for High Volume and/or Large Areas, Saabrucken, Germany, 27-31 Oct. 1997
Sponsor(s): Asahi Glass Co.; The BOC Group; Cardinal IG; Leybold Mater. GmbH; Leybold Syst. GmbH; et al
DOCUMENT TYPE: Conference; Conference Article; Journal
TREATMENT CODE: Application; Practical; Experimental
COUNTRY: Netherlands
LANGUAGE: English
AN 1997:5757012 INSPEC DN A1998-01-8115H-008; B1998-01-0520F-015
AB Chemical vapor deposition has been used to deposit films of a wide variety of materials. Those of particular interest to the **glass** industry include coatings of silicon, titanium nitride, and the oxides of silicon, aluminum, tin, zinc and transition metals, which can add very useful electrical and **optical** properties to **glass.** Several different chemical sources and reactions are used to deposit these materials. Comparison of these processes will be made in terms of ease of use of the precursors, attainable deposition rates, and safety and cost of the precursors. Equipment has been developed to deposit these materials with excellent thickness uniformity over large areas of **glass.** Fluorine-doped tin oxide and zinc oxide efficiently reflect infrared **heat** (low emissivity), thereby increasing the insulating ability of **windows.** These materials also conduct electricity, leading to a variety of applications, including solar **cells**, flat-panel displays, touch control panels, and static dissipation. Titanium nitride provides near-infrared reflectivity, which can provide high-performance rejection of solar **heat** (solar control **glass**). Silicon/silicon dioxide/silicon trilayers form durable mirror coatings with high reflectivity to visible light. Amorphous aluminum oxide films are excellent barriers to diffusion of sodium out of soda-lime **glass**

L3 ANSWER 45 OF 58 INSPEC (C) 2006 IET on STN
ACCESSION NUMBER: 1997:5545094 INSPEC
DOCUMENT NUMBER: A1997-09-3280P-019; B1997-05-7130-038
TITLE: Research on the cesium cold atoms at the Institute for Atomic Physics in Bucharest, Romania
AUTHOR: Mandache, C.; (Inst. of Atomic Phys., Bucharest, Romania), Acsente, T.; Bengulescu, M.
SOURCE: Proceedings of the Fifth Symposium on Frequency Standards and Metrology, 1996, p. 415-16 of xxiv+548 pp., 2 refs.
Editor(s): Bergquist, J.C.
ISBN: 981 02 2527 X
Published by: World Scientific, Singapore, Singapore
Conference: Proceedings of Fifth Symposium on Frequency Standards and Metrology, Woods Hole, MA, USA, 15-19 Oct. 1995
Sponsor(s): Air Force Office of Sci. Res.; NIST
DOCUMENT TYPE: Conference; Conference Article
TREATMENT CODE: Experimental
COUNTRY: Singapore
LANGUAGE: English
AN 1997:5545094 INSPEC DN A1997-09-3280P-019; B1997-05-7130-038

AB We present the first results of the researches concerning the cesium cold atoms performed at the Institute for Atomic Physics in Bucharest. Our experimental device for cooling and stopping the Cs atoms is quite simple: a main **fused** silica cylinder (50 mm diameter) with four orthogonal arms (18 mm diameter), and at each end, **optical windows** to allow the laser radiation to pass. The Cs reservoir is attached to the **glass** envelope in a "cold finger" configuration. All the **cell** trap (including the "cold finger" of Cs) is attached to an ionic pump

L3 ANSWER 46 OF 58 INSPEC (C) 2006 IET on STN
ACCESSION NUMBER: 1996:5215835 INSPEC
DOCUMENT NUMBER: A1996-08-8115J-012; B1996-05-0520F-018
TITLE: Formation of metal oxides by cathodic arc deposition
AUTHOR: Anders, S.; Anders, A.; Rubin, M.; Wang, Z.; Raoux, S.; Kong, F.; Brown, I.G. (Lawrence Berkeley Lab., California Univ., Berkeley, USA)
SOURCE: Surface and Coatings Technology (Nov. 1995), vol.76, no.1-3, p. 167-73, 27 refs.
CODEN: SCTEEJ, ISSN: 0257-8972
SICI: 0257-8972(199511)76:1/3L.167:FMOC;1-6
Price: 0257-8972/95/$09.50
Published by: Elsevier, Switzerland
Conference: 22nd International Conference on Metallurgical Coating and Thin Films, San Diego, CA, USA, 24-28 April 1995
DOCUMENT TYPE: Conference; Conference Article; Journal
TREATMENT CODE: Experimental
COUNTRY: Switzerland
LANGUAGE: English
AN 1996:5215835 INSPEC DN A1996-08-8115J-012; B1996-05-0520F-018
AB Cathodic arc deposition is an established and industrially applied technique for the formation of nitrides (e.g. TiN); it can also be used for metal oxide thin film formation. A cathodic arc plasma source with the desired cathode material is operated in an oxygen atmosphere of appropriate pressure, and metal oxides of various stoichiometric composition can be formed on different substrates. We report here on a series of experiments on metal oxide formation by cathodic arc deposition for different applications. Black copper oxide has been deposited on accelerator components to increase the radiative **heat** transfer between the parts. Various metal oxides such as tungsten oxide, niobium oxide, nickel oxide and vanadium oxide have been deposited on ITO **glass** to form electrochromic films for **window** applications. **Optical** waveguide structures can be formed by refractive index variation using oxide multilayers. We have synthesized multilayers of Al2O3-Y2O3-Al2O3-Si as possible basic structures for passive optoelectronic integrated circuits, and Al2-xErxO3 thin films with a variable Er concentration which is a potential component layer for the production of active optoelectronic integrated devices such as amplifiers or lasers at a wavelength of 1.53 μm. Aluminum and chromium oxide films have been deposited on a number of substrates to impart improved corrosion resistance at high temperature. Titanium sub-oxides which are electrically conductive and corrosion resistant and stable in a number of aggressive environments have been deposited on various substrates. These sub-oxides are of great interest for use in electrochemical **cells.** Common features of all these depositions are the high deposition rate typical for cathodic arc deposition, the good adhesion of the films due to the high metal ion energy, and the advantage of an environmentally clean method in comparison to wet-chemical oxide formation techniques

L3 ANSWER 47 OF 58 INSPEC (C) 2006 IET on STN
ACCESSION NUMBER: 1995:5104278 INSPEC
DOCUMENT NUMBER: A1995-24-8115H-084; B1995-12-0520F-155
TITLE: Direct deposition of metal film patterns using

nitrogen laser
AUTHOR: Reznikova, E.F.; (Inst. of Inorg. Chem., Novosibirsk, Russia), Chesnokov, V.V.; Zharkova, G.I.; Igumenov, I.K.
SOURCE: Journal de Physique IV (Colloque) (June 1995), vol.5, no.C5, pt.2, p. 687-94, 14 refs.
CODEN: JPICEI, ISSN: 1155-4339
Conference: Tenth European Conference on Chemical Vapour Deposition, Venice, Italy, 10-15 Sept. 1995
DOCUMENT TYPE: Conference; Conference Article; Journal
TREATMENT CODE: Experimental
COUNTRY: France
LANGUAGE: English
AN 1995:5104278 INSPEC DN A1995-24-8115H-084; B1995-12-0520F-155
AB Rhenium, gold and platinum film micropatterns were obtained by the LCVD method on the surface of silicon and **glass** substrates from vapors of Re2(CO)10, (CH3)2Au(dpm), Pt(hfa)2, respectively. The **heated** reaction **chamber** at atmospheric pressure with a **flow** of an inert gas-carrier was used. The high marginal sharpness and the thickness uniformity of deposited films was provided by the use of a powerful nanosecond pulse nitrogen laser (λ=337 nm), a projective system for delineation of the irradiation zone and by laser beam microscanning in the limits of the projective mask **window.** The metal pattern replicating the configuration of the projective mask **window** with a uniform 0.1-1 μm thickness was formed during 1-10 s. The writing rate of the straight metal lines was limited by the size of the irradiation zone and by the pulse repetition frequency and made of 150 μm/s. The smooth Re films were obtained with a good adhesion to the substrate and a surface resistivity of about 1 Ω/square. The films of Au and Pt were deposited as layers of microdrops whose coupling with one another and with the contact ground determined the film resistivity. The **melting** of Au and Pt films occurs during the laser-induced deposition process and influences the film growth dynamics and the film-to-substrate adhesion

L3 ANSWER 48 OF 58 INSPEC (C) 2006 IET on STN
ACCESSION NUMBER: 1994:4660185 INSPEC
DOCUMENT NUMBER: A1994-11-8630J-024; B1994-06-8420-024
TITLE: Photovoltaic generating elements for the cladding of building facades
AUTHOR: Lowenstein, V.; Hager, A. (Schuco Int., Bielefeld, Germany)
SOURCE: ETA Elektrowaerme im Technischen Ausbau, Edition A (Jan. 1994), vol.52, no.1, p. A26-29
CODEN: EETAD2, ISSN: 0174-6189
DOCUMENT TYPE: Journal
TREATMENT CODE: Practical
COUNTRY: Germany
LANGUAGE: German
AN 1994:4660185 INSPEC DN A1994-11-8630J-024; B1994-06-8420-024
AB The article describes a novel technology for using the facades of a building for photovoltaic generation. The constructional element is a panel, which may be of any size between 500+500 mm and 1600+2200 mm, consisting of a sandwich of two layers of safety **glass**, two layers of foil, one of which is transparent and the other transparent or opaque, and the layer of solar **cells.** Any number of such panels can be used as a constructional element of the walls or roof of a building, or as sunshades or awnings over **windows.** Panels can also be made with an additional layer of **glass** and an intermediate space to prevent the outward **flow** of **heat.** It discusses the criteria for planning these installations and some details of design and application

L3 ANSWER 49 OF 58 INSPEC (C) 2006 IET on STN
ACCESSION NUMBER: 1993:4483160 INSPEC

DOCUMENT NUMBER: A1993-20-4280E-001; B1993-10-4150-025
TITLE: Sol-gel coatings for electrochromic devices
AUTHOR: Macedo, M.A.; Dall'Antonia, L.H.; Aegerter, M.A. (Inst. de Fisica de Quimica de Sao Carlos, Sao Paulo Univ., Brazil)
SOURCE: Smart Materials Fabrication and Materials for Micro-Electro-Mechanical Systems, 1992, p. 125-30 of xi+317 pp., 12 refs.
Editor(s): Jardine, A.P.; Johnson, G.C.; Crowson, A.; Allen, M.
Published by: Mater. Res. Soc, Pittsburgh, PA, USA
Conference: Smart Materials Fabrication and Materials for Micro-Electro-Mechanical Systems, San Francisco, CA, USA, 28-30 April 1992
DOCUMENT TYPE: Conference; Conference Article
TREATMENT CODE: Application; Practical; Experimental
COUNTRY: United States
LANGUAGE: English
AN 1993:4483160 INSPEC DN A1993-20-4280E-001; B1993-10-4150-025
AB All solid state electrochromic smart **windows** with the configuration **glass**/ITO/WO3/electrolyte/TiO2-CeO2/ITO/ **glass** have been realized. These devices have potential applications in architectural and automotive fields to regulate the transmission and reflection of the radiant energy. The ion storage electrode TiO2-CeO2 have been realized by sol gel process and its electrochemical properties are studied as a function of various parameters (thickness, **heat** treatment, etc.). The electrochemical and **optical** performances of two **cells** are reported

L3 ANSWER 50 OF 58 INSPEC (C) 2006 IET on STN
ACCESSION NUMBER: 1990:3523193 INSPEC
DOCUMENT NUMBER: A1990-003588; B1990-005656
TITLE: Characterization of window layers in CuInSe2 thin-film solar cells
AUTHOR: Shafarman, W.N.; Birkmire, R.W. (Inst. of Energy Conversion, Delaware Univ., Newark, DE, USA)
SOURCE: Conference Record of the Twentieth IEEE Photovoltaic Specialists Conference - 1988 (Cat. No.88CH2527-0), 1988, p. 1515-19 vol.2 of 2 vol. 1664 pp., 8 refs.
Price: 0160-8371/88/0000-1515$01.00
Published by: IEEE, New York, NY, USA
Conference: Conference Record of the Twentieth IEEE Photovoltaic Specialists Conference - 1988 (Cat. No.88CH2527-0), Las Vegas, NV, USA, 26-30 Sept. 1988
Sponsor(s): IEEE
DOCUMENT TYPE: Conference; Conference Article
TREATMENT CODE: Practical; Experimental
COUNTRY: United States
LANGUAGE: English
AN 1990:3523193 INSPEC DN A1990-003588; B1990-005656
AB Electrical and **optical** properties of (CdZn)S:In, (CdZn)S:In/ITO, and ZnO **windows** in CuInSe2 thin-film solar **cells** were measured and compared to the properties of equivalent **window** layers deposited on **glass.** The resistivity and **absorption** edge of (CdZn)S:In films are characterized as a function of In dopant concentration and Zn content, and it is shown that the Burstein-Moss shift decreases as the Zn content is raised. Air **heat** treatments, used to increase Voc and efficiency of CuInSe2 **cells**, increase the resistivity and decrease the **absorption** edge of (CdZn)S:In **window** layers. CuInSe2/ZnO **cells** are shown to have higher Jsc than **cells** with (CdZn)S **windows** but low Voc and efficiency

L3 ANSWER 51 OF 58 INSPEC (C) 2006 IET on STN

ACCESSION NUMBER: 1984:2170877 INSPEC
DOCUMENT NUMBER: A1984-011971
TITLE: Transport efficiency of high power VUV light beams across lithium and magnesium fluoride crystals
AUTHOR: Kamrukov, A.S.; Kashnikov, G.N.; Kozlov, N.P.; Kuznetsov, S.G.; Orlov, V.K.; Protasov, Yu.S.; Reiterov, V.M. (N.E. Bauman Higher Tech. Coll., Moscow, USSR)
SOURCE: Soviet Physics - Technical Physics (March 1983), vol.28, no.3, p. 378-80, 5 refs.
CODEN: SPTPA3, ISSN: 0038-5662
Price: 0038-5662/83/030378-03$03.40
Translation of: Zhurnal Tekhnicheskoi Fiziki (March 1983), vol.53, no.3, p. 598-601
CODEN: ZTEFA3, ISSN: 0044-4642
DOCUMENT TYPE: Journal; Translation Abstracted
TREATMENT CODE: Practical; Experimental
COUNTRY: United States; USSR
LANGUAGE: English
AN 1984:2170877 INSPEC DN A1984-011971
AB The solution of many scientific and applied problems in quantum electronics, photochemistry, photolithography, etc., requires high-power intense light sources in which the emitting plasma is isolated from the irradiated specimen by a solid transparent wall. The use of quartz to output high-power UV and VUV light beams is significantly limited because of the reversible opacity effect, which causes the edge of the UV transmission band to shift rapidly toward longer wavelengths (up to 350 nm). One possible method for increasing the brightness of UV and VUV light sources is to replace the quartz **glass** by **optical** lithium fluoride (LiF) and magnesium fluoride (MgF2) crystals, which under normal conditions have transmission bands with edges lying in the far VUV spectral region (λ(min)LiF=105 nm, λ(min)MgF(2)=110 nm). However, the existing experimental data on transmission of UV and VUV light by fluoride crystals were obtained for relatively low **heat** fluxes reaching the crystals, and it has remained unclear whether it is possible in principle to transport powerful light beams (corresponding to brightness temperature 30000K and above). The authors carry out an experimental study of this question. The experiments were conducted using a cumulative plasmodynamic discharger, which consisted of two identical magnetoplasma compressors mounted at opposite ends of a cylindrical discharge **chamber** equipped with planar LiF or MgF2 **optical windows** for outputting radiation

L3 ANSWER 52 OF 58 INSPEC (C) 2006 IET on STN
ACCESSION NUMBER: 1983:1962454 INSPEC
DOCUMENT NUMBER: A1983-003662
TITLE: Near infrared absorption coefficient of molten glass by emission spectroscopy
AUTHOR: Berg, J.I. (Owens-Corning Fiberglass Corp., Tech. Center, Granville, OH, USA)
SOURCE: International Journal of Thermophysics (Dec. 1981), vol.2, no.4, p. 381-94, 15 refs.
CODEN: IJTHDY, ISSN: 0195-928X
DOCUMENT TYPE: Journal
TREATMENT CODE: Experimental
COUNTRY: United States
LANGUAGE: English
AN 1983:1962454 INSPEC DN A1983-003662
AB Emission spectroscopy is applied in the determination of the near infrared spectral **absorption** coefficient of molten **glass.** The **glass** is held in a small horizontal platinum alloy crucible, within an electrically **heated cell,** optically coupled to a Fourier transform spectrometer. A formula is derived which relates emissivity to **absorption** coefficient, thickness and reflectivities for the **glass**-air and

glass-metal interfaces. The reflectivity parameters are determined, in effect, by varying the thickness. Spectral **absorption** coefficient results are compared with results of transmission spectroscopy. The emission technique is advantageous in that it eliminates the problem of chemical reactions with **window** materials used in the transmission method, and **sample** preparation and interfacing to commercially available spectrometers is simplified

L3 ANSWER 53 OF 58 INSPEC (C) 2006 IET on STN
ACCESSION NUMBER: 1979:1317620 INSPEC
DOCUMENT NUMBER: A1979-024901; B1979-016094
TITLE: Cu2S-CdS sprayed layer solar photopiles
AUTHOR: Martinuzzi, S.; Oualid, J.; Cabane-Brouty, F.; Mostavan, A.; Gervais, J. (Univ. d'Aix-Marseille III, Marseille, France)
SOURCE: Revue de Physique Appliquee (Jan. 1979), vol.14, no.1, p. 237-43, 16 refs.
CODEN: RPHAAN, ISSN: 0035-1687
DOCUMENT TYPE: Journal
TREATMENT CODE: Experimental
COUNTRY: France
LANGUAGE: French
AN 1979:1317620 INSPEC DN A1979-024901; B1979-016094
AB Investigates some properties of CdS sprayed layers in order to determine the best preparation conditions for the realization of Cu2S-CdS **window** effect photocells. The layers are made by means of single pulverisations of aqueous solutions containing cadmium chloride and thiourea, on **heated glass** substrates. The ratio S/Cd may vary from 1 to 3. The sprayed layers deposited on substrates **heated** at 380°C, starting from solutions which the ratio S/Cd=1, are suitable for the **cell** preparation. Indeed, the crystallite sizes attain 0.5 μm, the orientation (00.2) is striking as for the evaporated layers, and the layers are transparent (λ>520 nm). However, the electrical properties (resistivity, mobility, electronic density) are strongly dominated by the adsorption of oxygen which occurs at room temperature. A complete desorption is obtained by a short heating **at** 280°C in vacuum or at 200°C in an hydrogen flow. **After** the oxygen desorption the layers resistivity falls to few mΩ.cm. This low values is related with residual chlorine. Backwall cells **were** made with sprayed layers deposited on SnO2 covered glass **substrates.** The conversion efficiency attains 4 to 5% inspite of a very thin space charge region resulting of the overdoping of the CdS layer

L3 ANSWER 54 OF 58 INSPEC (C) 2006 IET on STN
ACCESSION NUMBER: 1978:1126330 INSPEC
DOCUMENT NUMBER: A1978-000299
TITLE: An infrared cell with silicon windows for solid sorption systems
AUTHOR: Moller, K.; Kunath, D. (Central Inst. of Phys. Chem., Berlin, West Germany)
SOURCE: Journal of Physics E (Scientific Instruments) (Oct. 1977), vol.10, no.10, p. 962-4, 13 refs.
CODEN: JPSIAE, ISSN: 0022-3735
DOCUMENT TYPE: Journal
TREATMENT CODE: Practical
COUNTRY: United Kingdom
LANGUAGE: English
AN 1978:1126330 INSPEC DN A1978-000299
AB A double cylindrical **cell** made of **glass** with silicon **windows** 0.1-0.2 mm apart is used for infrared transmission spectrophotometry of solid sorption systems. In practice, the **sample** beam of the spectrometer passes only through the solid sorption system; the background transmittance of the **cell** is

about 25%; and the leak rate is smaller than 10-8 Pa m3 s-1. The complete **cell** can be **heated** up to 720K

L3 ANSWER 55 OF 58 INSPEC (C) 2006 IET on STN
ACCESSION NUMBER: 1977:1048730 INSPEC
DOCUMENT NUMBER: A1977-039918
TITLE: Work function of rhodium as a function of the temperature of the heat treatment under ultravacuum conditions
AUTHOR: Belyaeva, M.E.; Larin, L.A.; Kalish, T.V. (Inst. of Electrochem., Acad. of Sci., Moscow, USSR)
SOURCE: Soviet Electrochemistry (April 1976), p. 543-5, 8 refs.
CODEN: SOECAI, ISSN: 0038-5387
Translation of: Elektrokhimiya (April 1976), vol.12, no.4, p. 567-70
CODEN: ELKKAX, ISSN: 0202-8093
DOCUMENT TYPE: Journal; Translation Abstracted
TREATMENT CODE: Experimental
COUNTRY: United States; USSR
LANGUAGE: English
AN 1977:1048730 INSPEC DN A1977-039918
AB The extrinsic photoeffect was used to measure the work function of a polycrystalline rhodium **sample** which was outgassed in ultravacuum, as a function of the temperature of the **heat** treatment. The measurements were made on rhodium foil having a thickness of 0.02 mm. The **sample** was shaped as a loop, and welded to rhodium wires which were fastened to molybdenum leads **fused** into the molybdenum **glass cell** with quartz **window**

L3 ANSWER 56 OF 58 INSPEC (C) 2006 IET on STN
ACCESSION NUMBER: 1974:608147 INSPEC
DOCUMENT NUMBER: A1974-017038
TITLE: Optical absorption in glass: investigation using an acoustic technique
AUTHOR: Parker, J.G. (Johns Hopkins Univ., Silver Spring, MD, USA)
SOURCE: Applied Optics (Dec. 1973), vol.12, no.12, p. 2974-7, 4 refs.
CODEN: APOPAI, ISSN: 0003-6935
DOCUMENT TYPE: Journal
TREATMENT CODE: Theoretical; Experimental
COUNTRY: United States
LANGUAGE: English
AN 1974:608147 INSPEC DN A1974-017038
AB It has been discovered that sound may be produced when a chopped light beam (416 Hz) enters a high pressure (35 atm) gas cell even though the gas (nitrogen, neon) is not i.r. active. This sound is due to interaction of the light with the cell window. Theory shows that a thin absorbing layer converts light to heat which is then transferred to the gas by thermal conduction. Experimental results using a 500W DEK lamp support the theory

L3 ANSWER 57 OF 58 INSPEC (C) 2006 IET on STN
ACCESSION NUMBER: 1973:482040 INSPEC
DOCUMENT NUMBER: A1973-011722
TITLE: Measurement of the enthalpy of fused boron oxide at high temperatures
AUTHOR: Shpil'rain, E.E.; Kagan, D.N.; Barkhatov, L.S. (High-Temperature Inst., Acad. Sci., USSR)
SOURCE: High Temperature (Jan.-Feb. 1972), vol.10, no.1, p. 171-2, 10 refs.
CODEN: HITEA4, ISSN: 0018-151X
Translation of: Teplofizika Vysokikh Temperatur

(Jan.-Feb. 1972), vol.10, no.1, p. 193-5
CODEN: TVYTAP, ISSN: 0040-3644
DOCUMENT TYPE: Journal; Translation Abstracted
TREATMENT CODE: Experimental
COUNTRY: United States; USSR
LANGUAGE: English
AN 1973:482040 INSPEC DN A1973-011722
AB The enthalpy of B2O3 was measured by the mixing method in a boiling calorimeter. The high-temperature part of the unit was selected in accordance with the temperature range being investigated. At temperatures up to 1000°K a furnace was used having wire-type molybdenum **heaters** in an alundum housing, while at higher temperatures it had **heaters** in the form of a cylindrical set of tungsten rods. In the latter case, the furnace was connected with the calorimeter by a transitional **chamber**, containing a movable total reflecting prism, a protective **glass**, and an observation **window.** The temperature was measured either with standard platinum-platinum-rhodium thermocouples or using a reference EOP-66 **optical** pyrometer, respectively. The internal space of the unit was filled with high-purity helium or with special-purity argon

L3 ANSWER 58 OF 58 INSPEC (C) 2006 IET on STN
ACCESSION NUMBER: 1970:95217 INSPEC
DOCUMENT NUMBER: A1970-009863
TITLE: Experimental apparatus for thermal transmittance measurement through large size walls
AUTHOR: Codegone, C.; Ferro, V. (Politecnico, Torino, Italy)
SOURCE: Thermal conductivity, proceedings of the sight conference, 1969, p. 1115-23 of xx+1165 pp.
Editor(s): Ho, C.Y.; Taylor, R.E.
Published by: Plenum, New York, NY, USA
Conference: Thermal conductivity, proceedings of the sight conference, LaFayette, IN, USA, 7-10 Oct. 1968
Sponsor(s): Purdue Univ., Thermophys. Properties Res. Centre
DOCUMENT TYPE: Conference; Conference Article
COUNTRY: United States
LANGUAGE: English
AN 1970:95217 INSPEC DN A1970-009863
AB A new apparatus for measurements of thermal transmittance on wall **samples** up to 3+3 m is reported. The apparatus consists of three **chambers**: a middle **heated** one, and two symmetrical refrigerated ones on the exterior; in between two wall-specimens separate the **chambers.** The middle **chamber** is used for calorimetric measurements of **heat flow** through the wall-specimens of dimensions up to 3+3 m of front surface. The measured quantity is the thermal transmittance (i.e., continuous **heat** flux referred to unit surface and unit temperature difference); this measurement comprises the effect of film thermal resistances, as the specimens are **heated** and refrigerated by air held in the said **chambers** and circulated by fans at proper speeds. Suitable control systems hold the temperatures at constant fixed values. The apparatus can operate also on multilayer walls presenting neither flat nor parallel external surfaces; i.e., modular prefabricated elements having doors, **windows**, **glass** panels can profitably be examined. The first series of experiments on a wall **sample** including **glass** surfaces is reported

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